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YEAR BOOK 1988

Twentythird Year
of Publication

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MANORAMA
YEAR BOOK 1988

Kottayam 686 001, Kerala, India

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Preface

We present the 23rd edition of Manorama Year Book with great pride and satisfaction. The print order of this 1988 edition is 1,00,000 copies – the highest ever circulation achieved by any publication of its kind in India. We thank the readers for their unstinted support.

Malayala Manorama is striding into the Centenary Year as the highest circulated daily in India. We are very happy that the sales graph of all our publications, including the only other English publication, *The Week* is moving up quite satisfactorily.

In the 1988 edition of Manorama Year Book, we have four Special Features – Superconductivity: Who Will Pull the Magic Wire First, Sri Lanka: Ethnic Conflict and the Prospects of Peace, Goa: The Youngest State and Seoul Olympics: the Gold Rush.

This is the Olympic Year and hence the feature on Seoul Meet has been enlarged with statistical data, expert comments and pictures. We thank Mr. Hyon-Ung Shin, Director General, International Press, Seoul Olympics Organizing Committee for sending us the necessary material to embellish the cover story.

In addition to the Special Features, we have introduced 'Updates' in all the four sections on Science & Technology, World Panorama, India & States and The World of Sports. The 'Science Update' is a feature on the Third Millennium. The 'World Update' is on the rise of Yen and its impact on world economy. An insight into the Indian economy's capacity to absorb the drought shock is the 'update' on India and States. A review of the greatest sports year that was – is the 'Update' on Sports.

Indian film industry is 75 years old. And Indian film music is celebrating the golden jubilee this year. We have two special articles prepared by an expert on the theme: The glorious 75 years of Indian cinema.

The two sections in colour – Maps of Countries and Continents and Tourist Spots in India are printed on glazed newsprint this time.

K.M. Mathew
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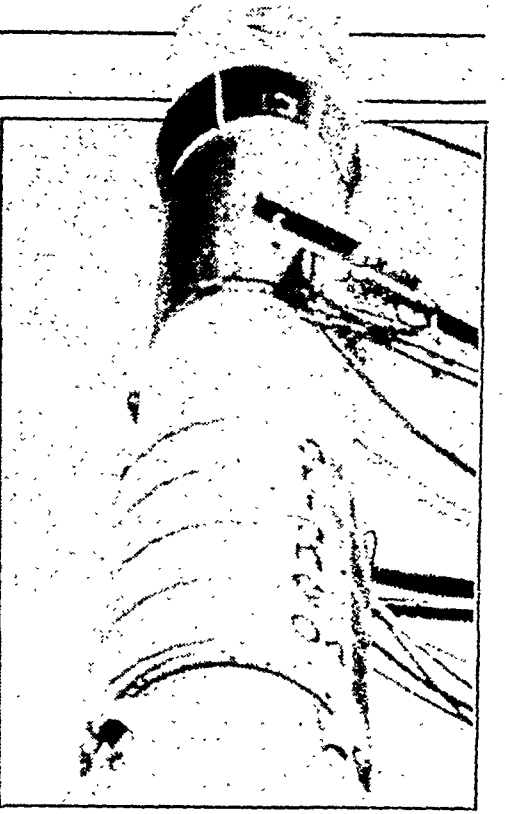

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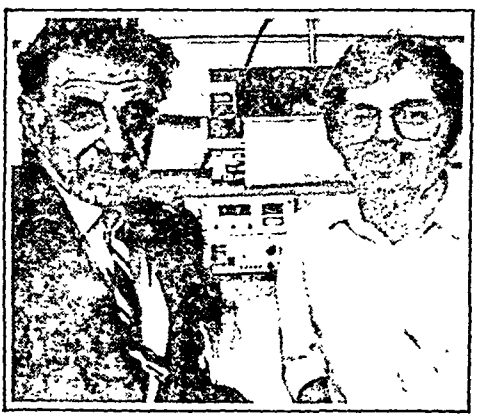

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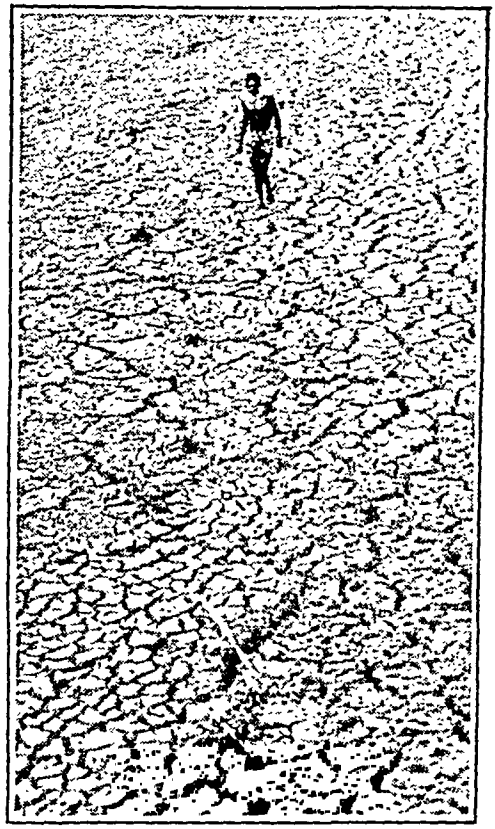

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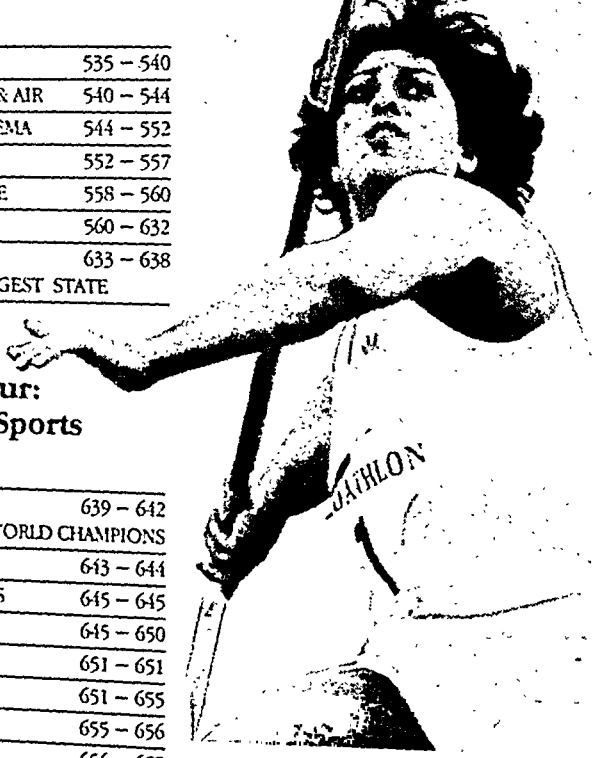

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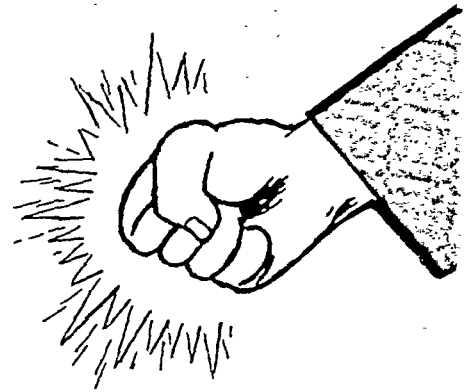

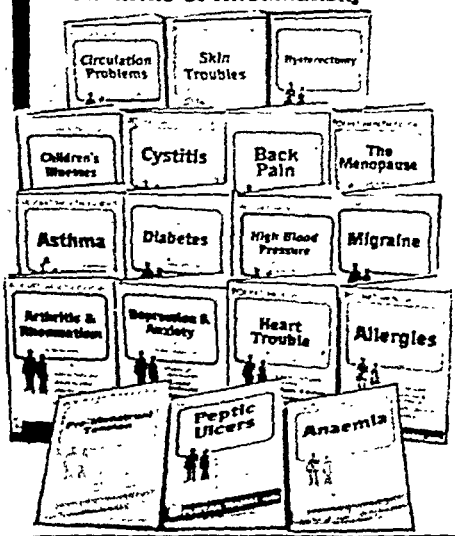

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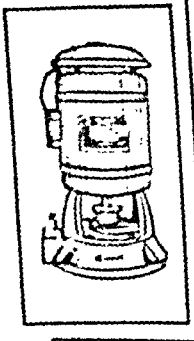

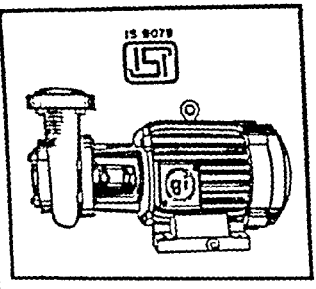

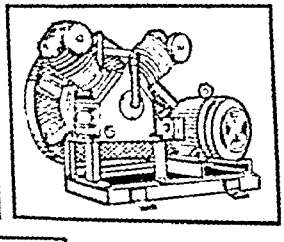

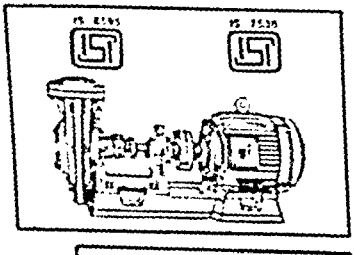

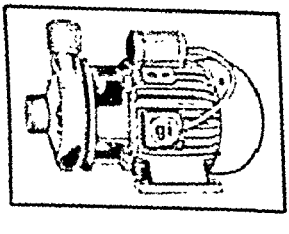

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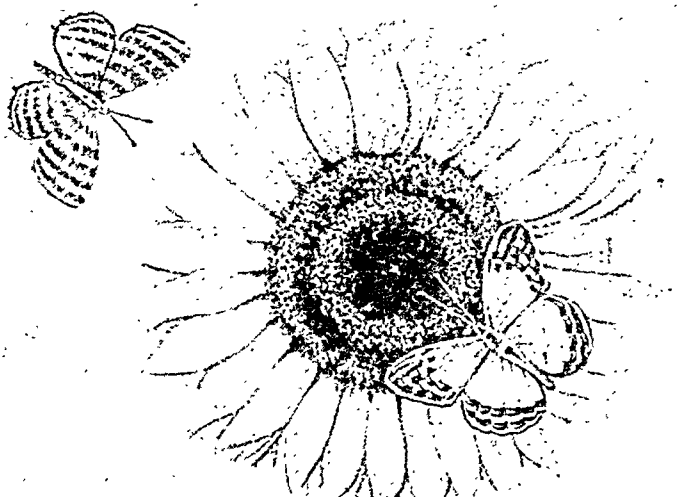

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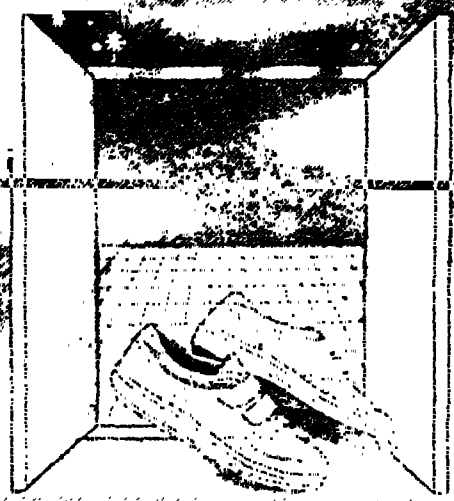

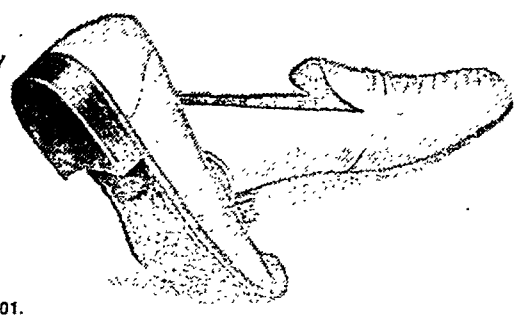

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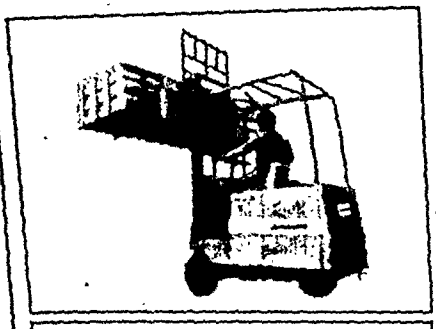

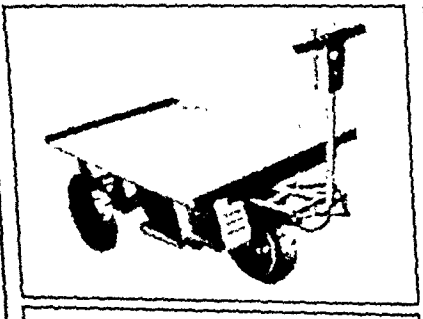

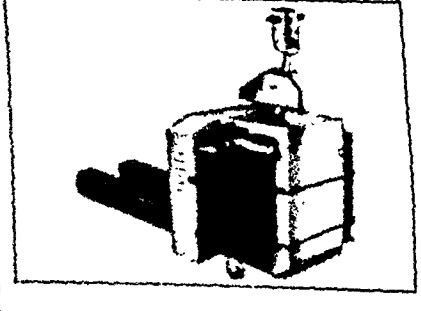

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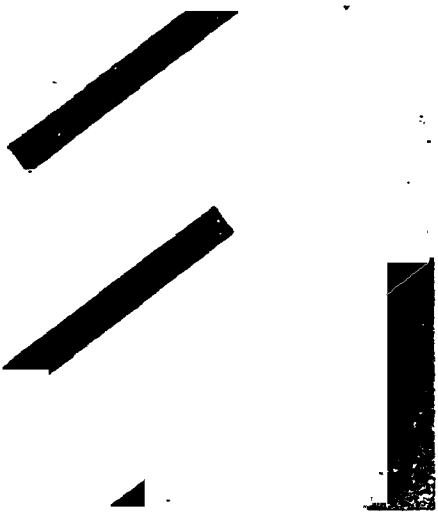

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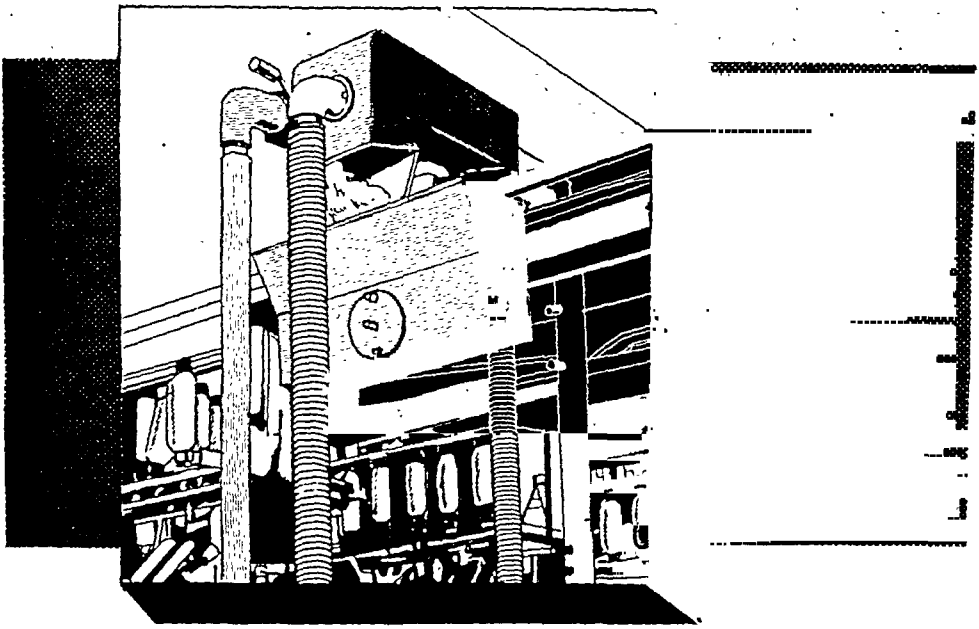

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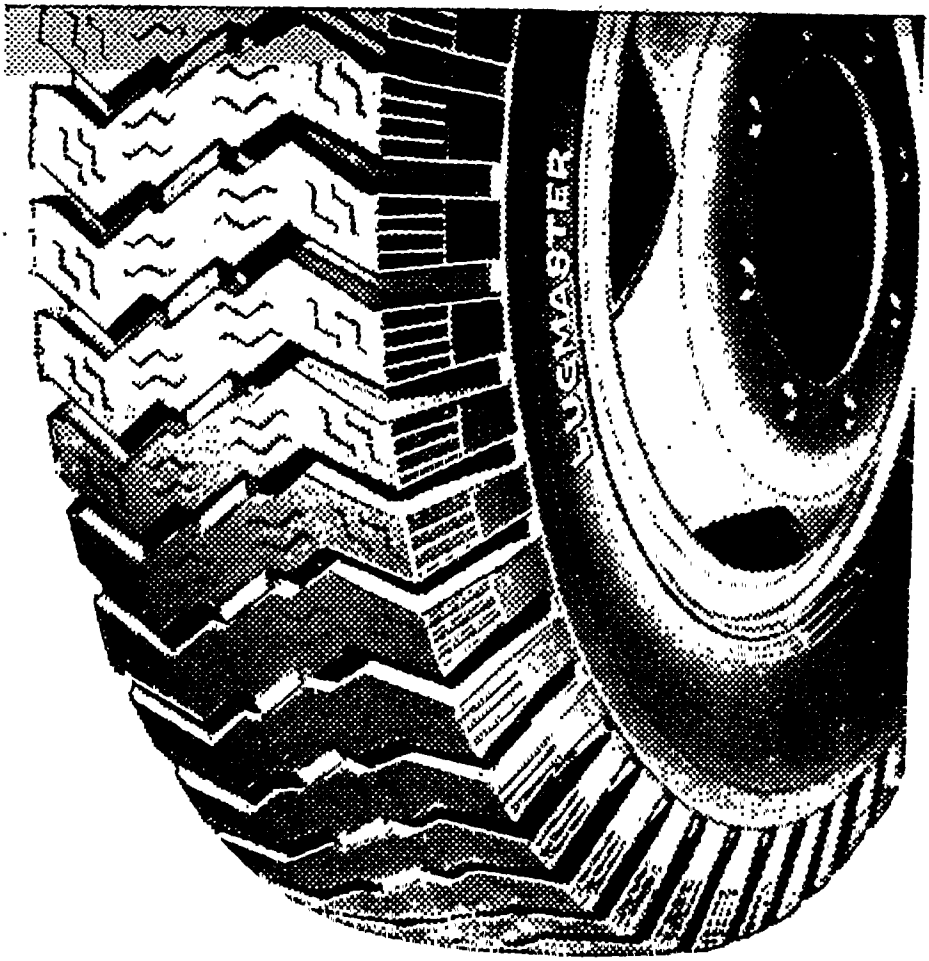

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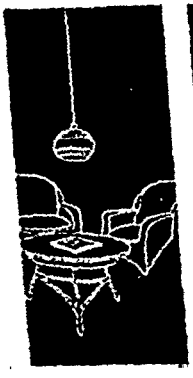

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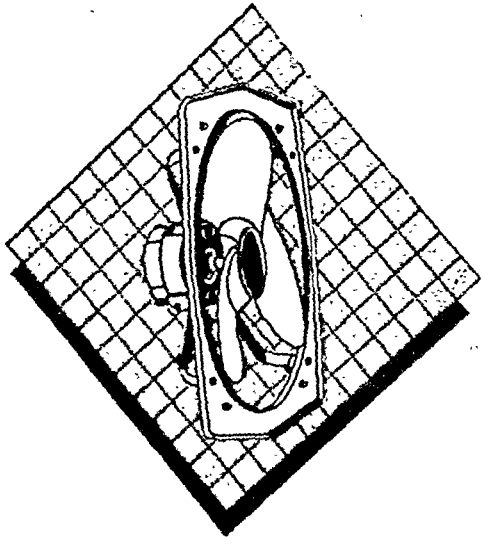

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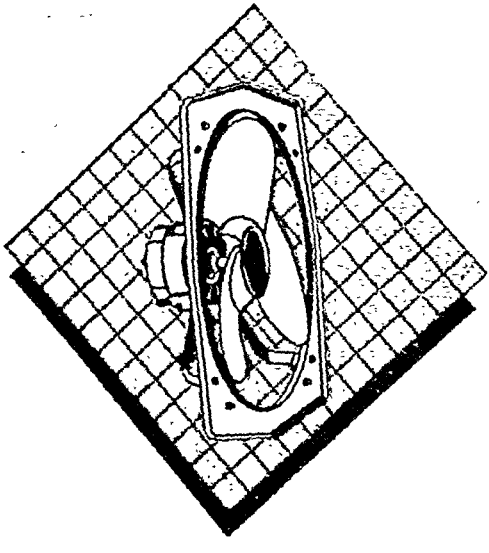

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SYNOPSIS OF BALANCE SHEETS

Rs. in lakhs

	Half Year ended 30.9.1986	Year ended 31.3.1987	Half Year ended 30.9.1987
Capital & Liabilities			
Paid up Capital	200	204	205
Reserves & Surplus	191	230	306
Secured Loans	165	225	270
Unsecured Loans	1568	2424	3239
Other Liabilities	513	693	786
Total	2640	3776	4836
Property & Assets			
Fixed Assets	783	1107	1629
Investments	32	30	69
Current Assets	1819	2257	2610
Loans and Advances	198	374	520
Misc. Expenditure	8	8	8
Total	2640	3776	4836

A COMPARATIVE POSITION OF THE WORKING RESULTS

Gross Income	304	749	366
Less			
Interest	106	283	217
Administrative Expenses	47	155	89
Depreciation	52	129	116
Taxation	—	28	22
	207	595	444
Net Profit for the Period/Year	97	154	122
Add : Surplus from last Year/Period	29	29	23
	126	183	145

HIGHLIGHTS

No. of Depositors	25173	36764	51134
No. of Borrowers	6512	11651	16565
No. of Branches	21	24	27
No. of Sakthi Safe Vaults	7	8	9

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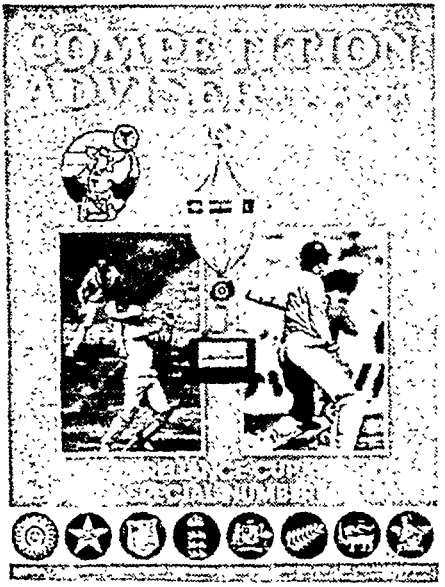

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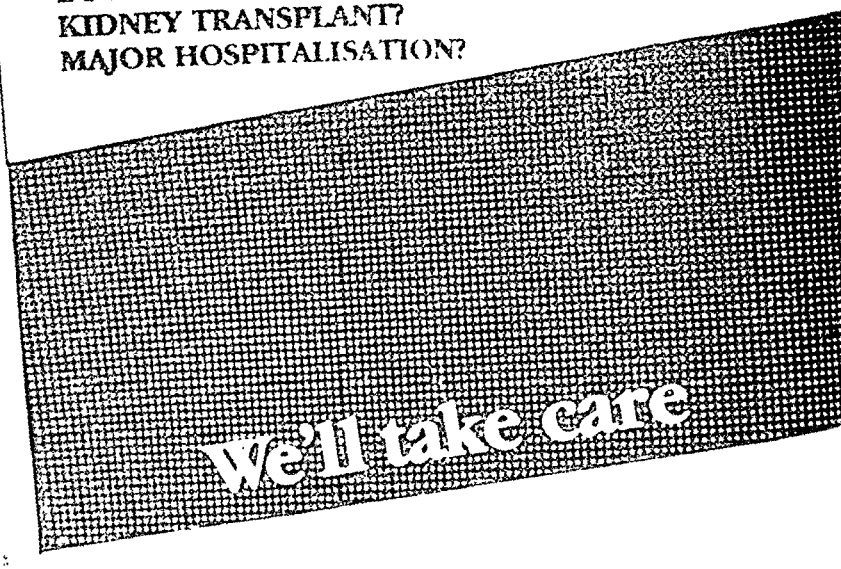

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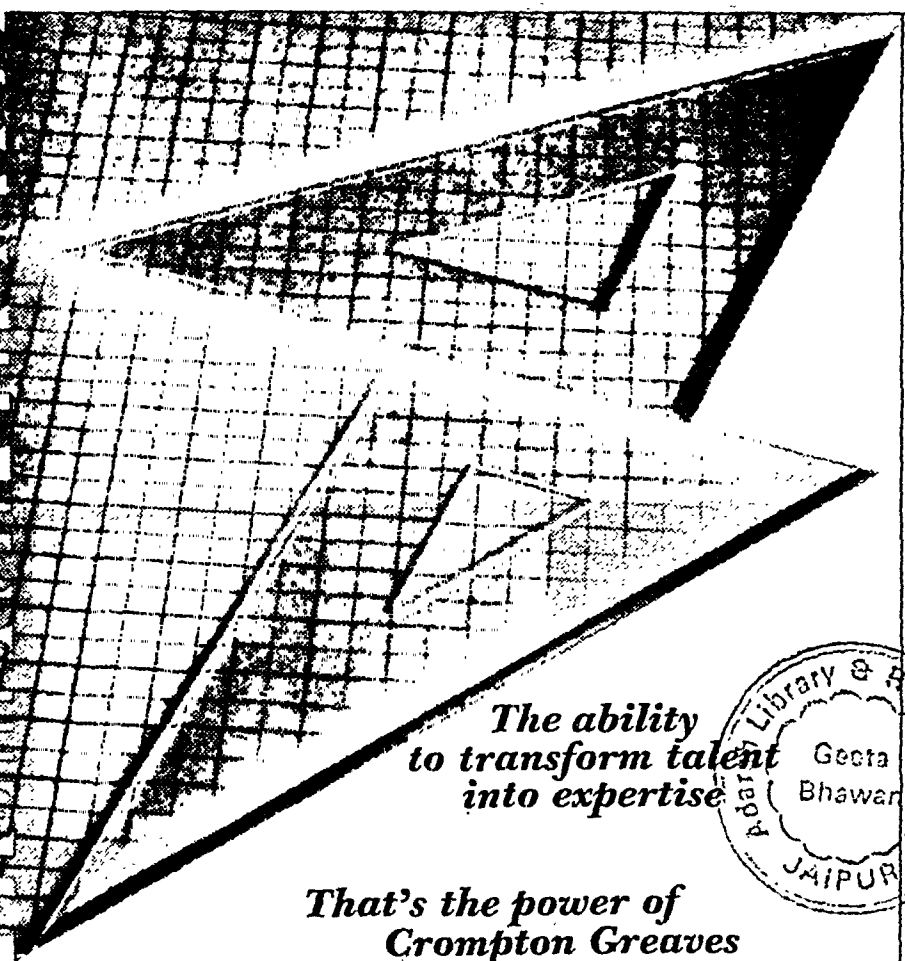

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For Polyamide: Swetak NR
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[illegible] alazone
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[illegible]
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Dyes Intermediates
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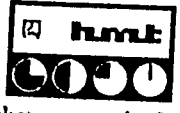

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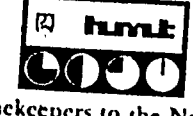

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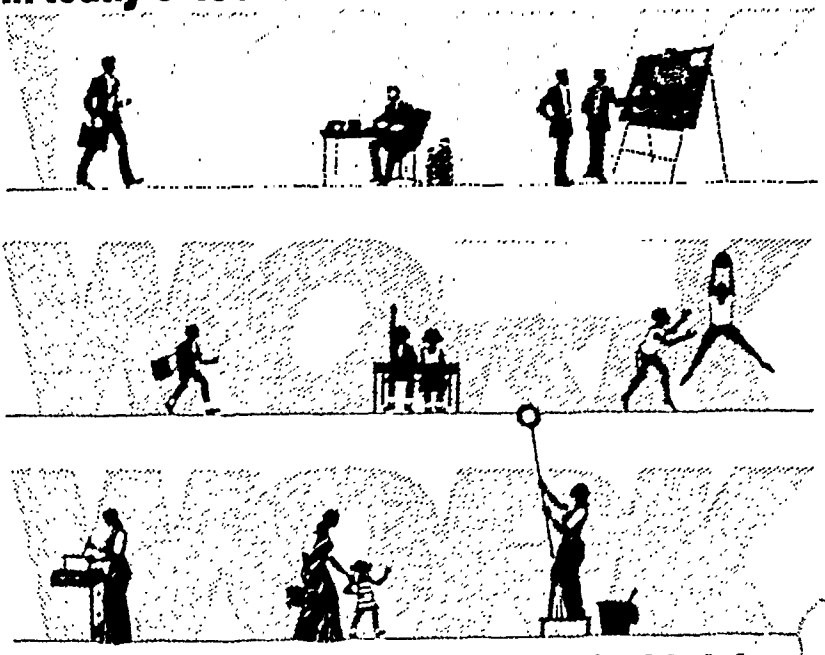

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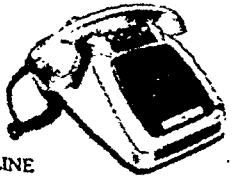

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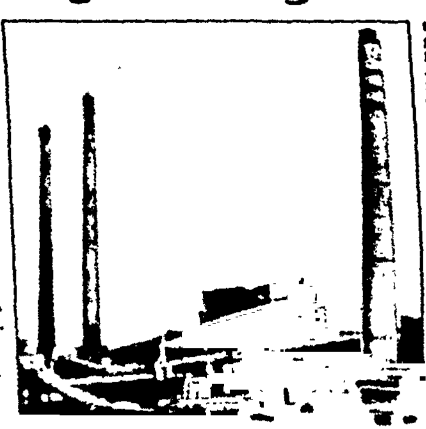

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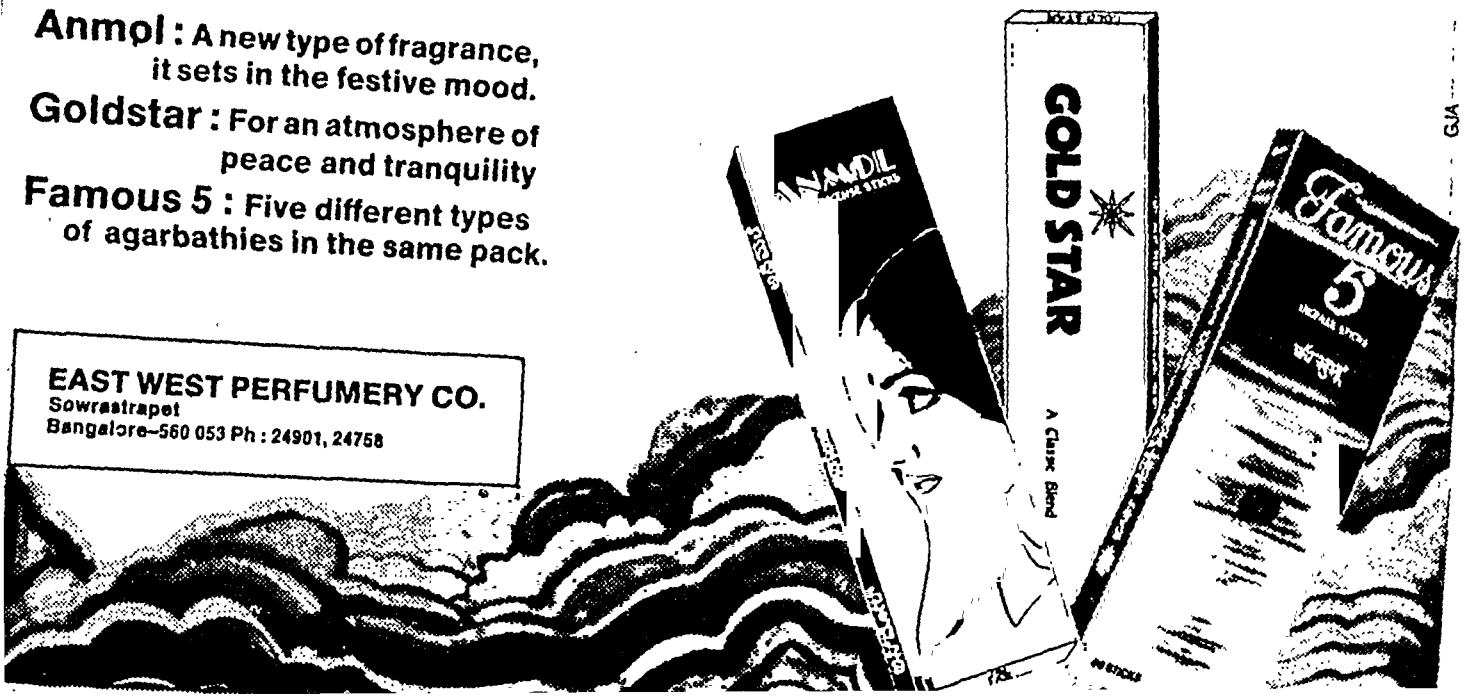

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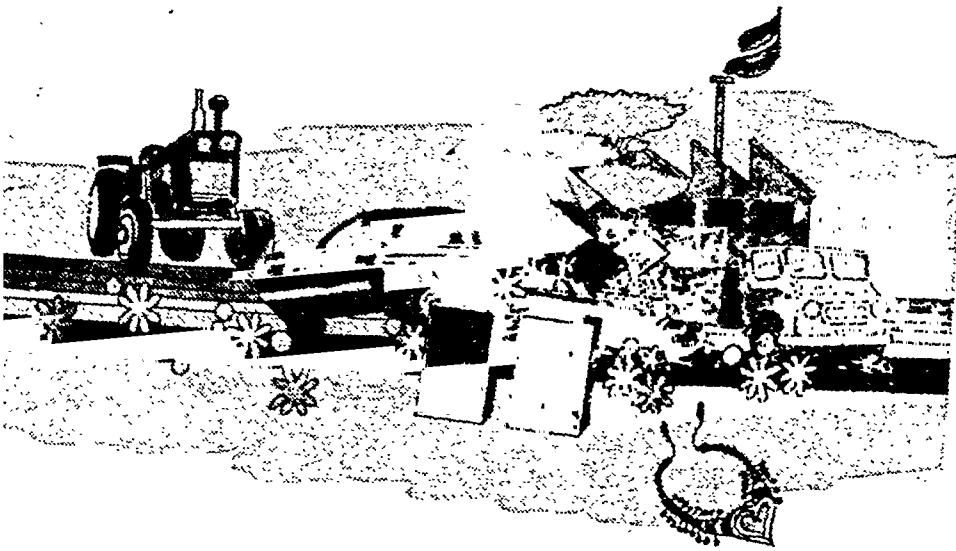

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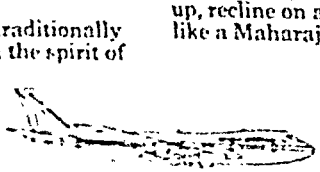

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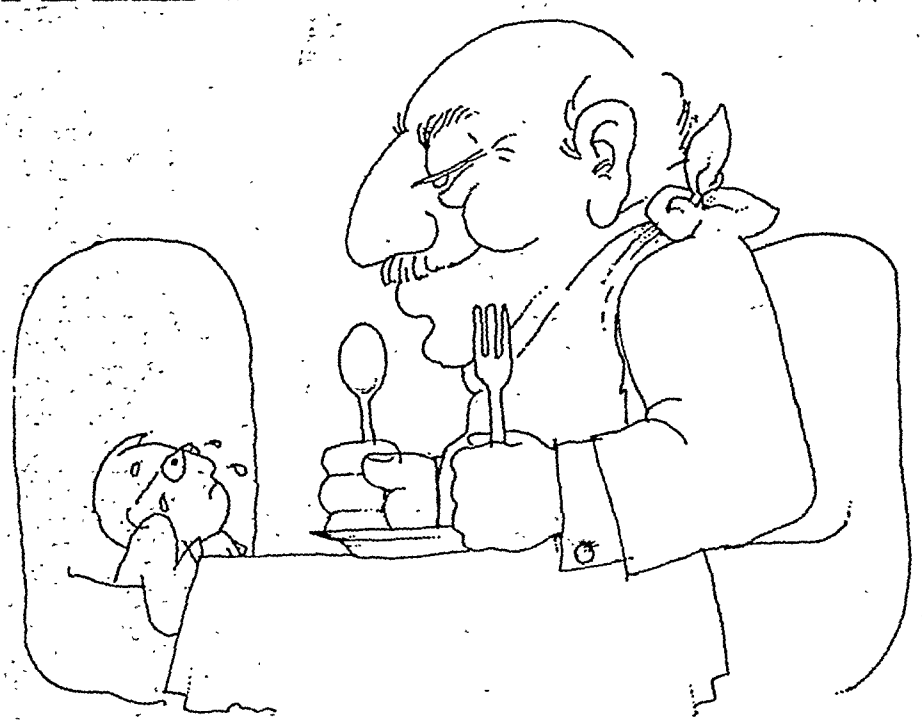

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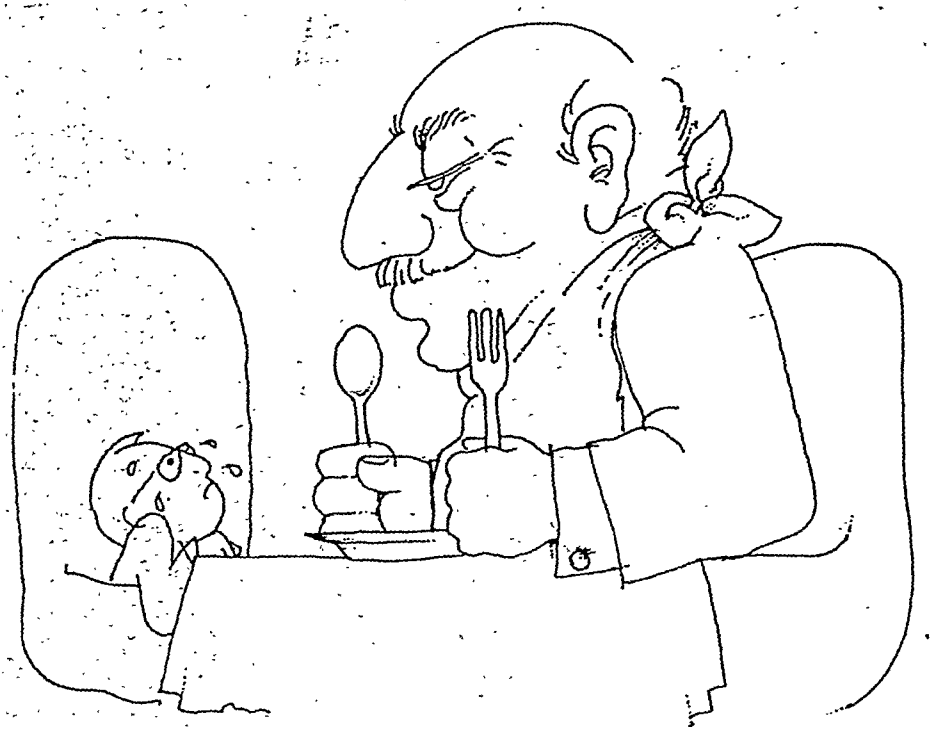

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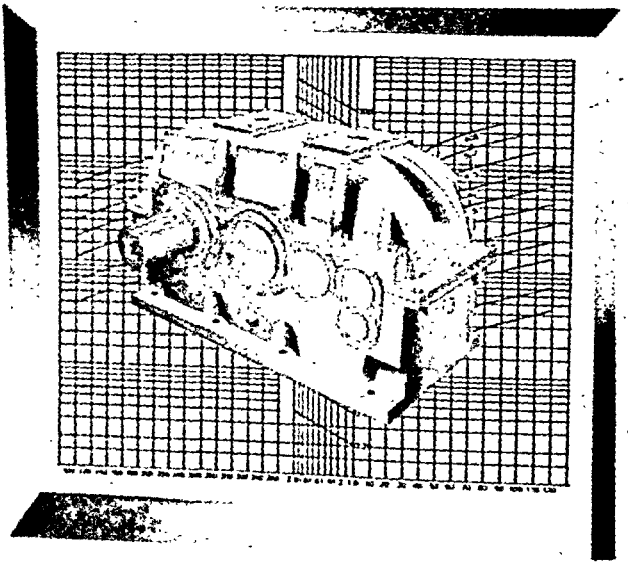

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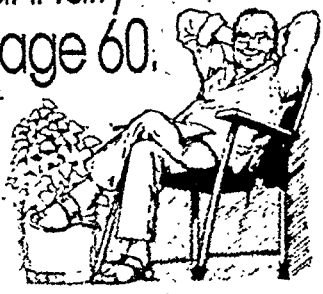

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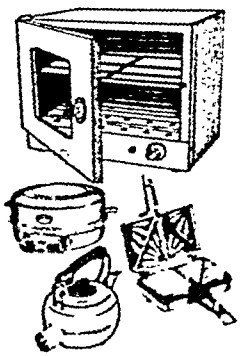

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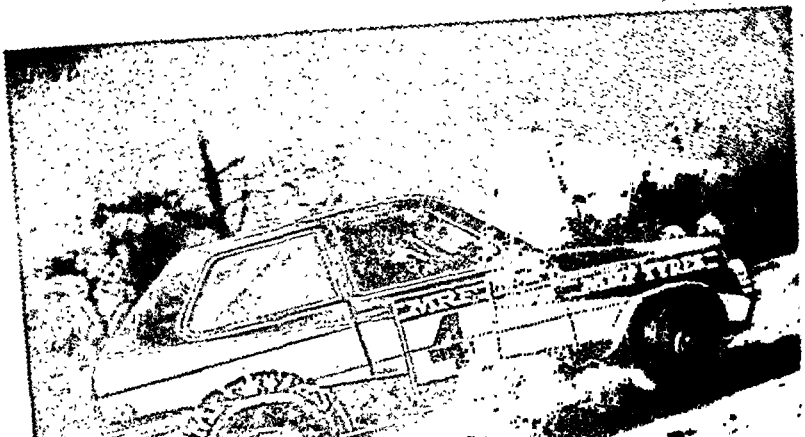

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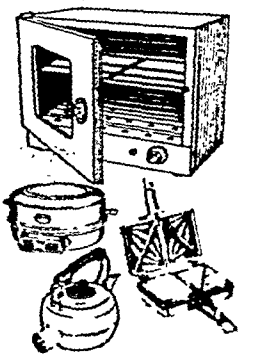

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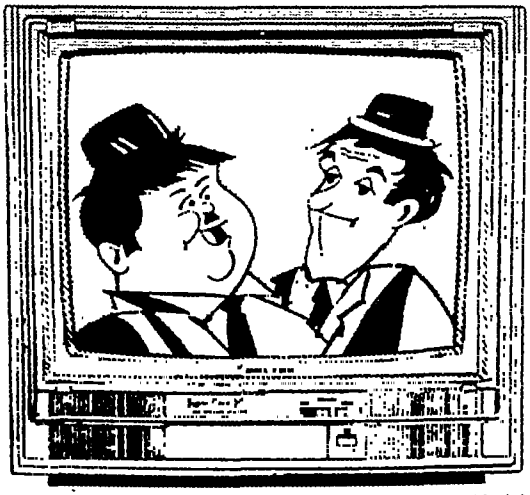

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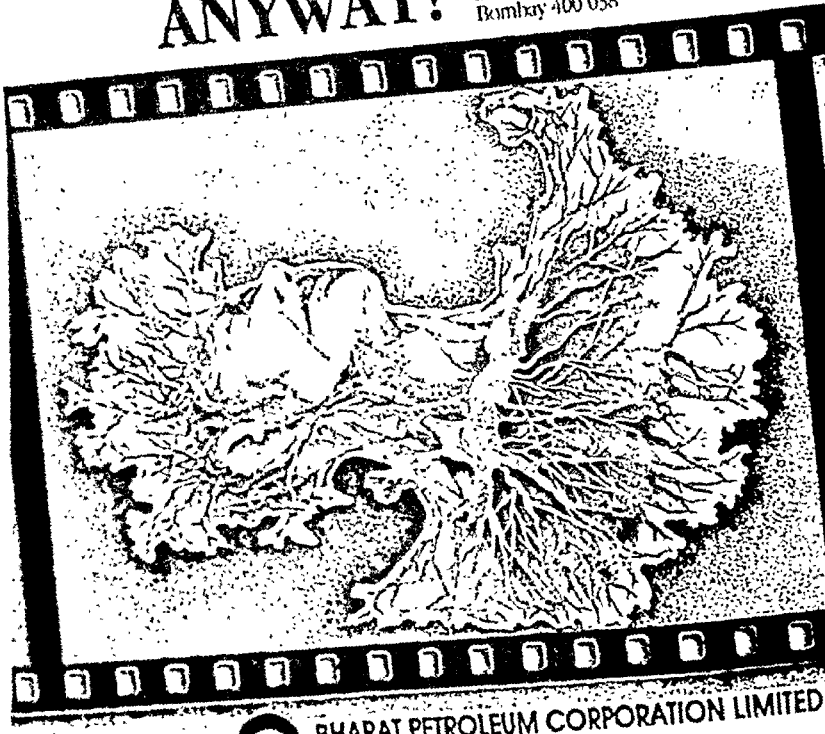

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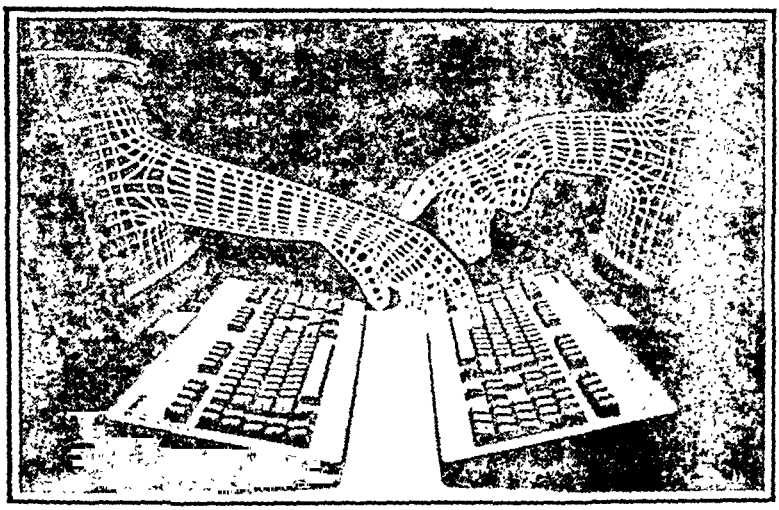

Part One

SCIENCE AND TECHNOLOGY

Life after 2000: Beginning Of a New Millennium

SCIENCE UPDATE

With the start of the third millennium less than 12 years away scientists, historians and philosophers are looking toward the next 1,000 years with a mixture of hope and foreboding.

LIKE some philo ophers of old, wh thought the batte ed planet woul never see the year 200 the year 3000 appea almost unattainable some of today's observer Hovering ominously ov everyone's crystal ball the threat of nuclear ann hilation.

Dr. Jonas Salk, foun ing director of the Sa Institute for Biologic Studies, sees mankind at historic crossroads, facir for the first time a choi between self-preservatic and self-destruction.

"It's as if we're begi ning to recognise a ne strategy, an evolutiona way of thinking, using t kinds of strategies natu uses to solve problen when limits are reached he says. "But in this cas the threats we need overcome are self-i duced."

Less optimistic than Salk is *Dr. L. S. Stavrianos,* world historian and adjunct professor at the University of California, San Diego. "The basic problem is that we are in the midst of a tremendous technological revolution that is in need of a corresponding social revolution," he observes.

The history of the world, Stavrianos says, has been marked by a lag in society's adjustments to technological change. This gap, he thinks, is especially dangerous today because of the pace and power of technology.

"For instance, the age-old idea that to keep peace we must prepare for war no longer makes sense," he says. "Scientists have assured us that even limited use of our weapons will mean curtains for the victors as well as the vanquished."

On the assumption that life will not only go on but improve, some scientists foresee previously unimaginable developments on many fronts.

Once scientists have mastered genetic manipulation and can supplement the brain with microchips, the human body itself may be altered in the coming millennium, says *Dr. Richard Jed Wyatt* of the National Institute of Mental Health.

Futurist *T. A. Heppenheimer* suggests that humans eventually may be cloned by dividing embryos at an early stage and freezing one half to be thawed and developed later. Such a mother and daughter would be unusually close, he writes, because "who could be closer than a daughter who is not only like you but is you?"

Scientist-author *Isaac Asimov* advocates settlement of space so that "humanity, or its intelligent descendants and allies, can live on even after the end of the Earth."

Ben Bova, president of the National Space Institute, believes earthlings will have populated much of their part of the galaxy by 3000 and will regularly embark on interstellar flights.

And there's a chance of locating extraterrestrial life — if it exists — in the next 1,000 years. "We've only begun to search, and the power of the equipment doubles every year," says *Dr. Paul Horowitz* of the Harvard-Smithsonian Oak Ridge Observatory, which is looking for life on other planets.

It's unlikely that Earth will collide with another celestial body or get hit by a meteorite. The average time between meteorite strikes is 50,000 years. Asimov says.

This millennium may see the end of some age-old phenomena. Wilde-beest herds, for example, have been rumbling back and forth across Africa's Serengeti for at least a million years, but the New York Zoological Society has questioned whether they'll survive another century in the face of human pressures.

Numerous species of animals and plants around the globe face extinction. But the world's human population is expected to soar, perhaps doubling in only the first 50 years of the millennium and then levelling off.

Traditional ways of governing will certainly change, predicts *Dr. William H. McNeil,* author and history professor at the University of Chicago. And Stavrianos says, "The most successful society of the future will be that which uses the greatest degree of mass participation."

Numerous species of animals and plants around the globe face extinction. But the world's human population is expected to soar, perhaps doubling in only the first 50 years of the millennium and then levelling off.

The big kickoff for the third millennium undoubtedly will be Jan. 1, 2000. But Mathematicians point out that dating, like counting, starts with the number one, not zero. Thus the actual first day of both the new millennium and the 21st century will be Jan. 1, 2001.

No approaching millennium could possibly have catalysed as much speculation as this one. In the underdeveloped Europe of the late 900s, most people weren't even aware of the date. "People didn't know it was New Year's Eve, 999," says *Dr. Amy Andreus,* a history professor at George Washington University. "To the people in France, for instance, it was merely the third year of the reign of King Robert."

The world of 1000 was so different fr

today's that now it would hardly be recognisable "China, India and the Muslim world were rich civilisations around 1000, while Western Europe was a place with an interesting future but really hadn't accomplished much," Andrew says. The mighty Roman Empire had crumbled long before, and high civilisation had receded toward the east.

One of the world's largest cities in 1000 was Constantinople, with a population of at least 300,000. Big cities also dotted China, whose Song dynasty already had produced the compass and gunpowder.

China was producing vast quantities of iron and steel and was moving to market system that would increase its wealth, double its population, and make it the world's most powerful and sophisticated nation. Though its power was eventually to fade, China set the world on a 1,000-year exploration of market-regulated behaviour, McNeill says.

Africa and the Americas of 1000 are sketchy in the minds of historians, although the continents contained known peninsulas of ate, volatile, superstitious teenagers." Fe lived past 30. The peasants' domain was world in which most babies died young, t starving ate grass and women were yoked the plough to replace animals lost to wint "Europe around the year 1000," writes his rian Charles T. Wood," was no place for t weak and tender-hearted."

Loosely governing the region was a coll tion of kings. "Western Europe was a gr network of personal power relationshi somewhat like the corporate network today", Andrews says. The kings were close illiterate; the only places to learn to read a write were monasteries.

Historians once believed that, as the y 1000 drew near, a general panic over t world's anticipated end seized the Europe masses. It is now known, however, that th was no mass terror, but that some peo thought the millennium might bring reali tion of the biblical prophecy of Satan's leashing, expected to precede Armagedd

Why was 1000 the significant year? Becau

One of the world's largest cities in 1000 was Constantinople, with a population of at least 300,000. Big cities also dotted China, whose Song dynasty already had produced the compass and the gun powder.

sophistication. It was a climatic year for the complex Maya civilization of the Yucatan, and the Cahokia Indians built a large settlement in what is now Illinois that reached a peak population of perhaps 40,000, the largest north of Mexico.

That year also represented the height of Viking explorations of the New World. Leif Eriksson is said to have discovered North America at Nova Scotia about 1000, although word of the discovery didn't reach much of the globe.

Between Asia and the New World lay the [illegible] area now known as western Europe. It was a region of scattered settlements, impenetrable forests and three distinct classes of people, the clergy (less than one per cent of the population), the warriors of the emerging feudal system (about two per cent), and the peasants, who lived in crowded huts and spent their miserable days toiling in fields.

"People liked to ride around on horses and kill things," Andrews says. "They were illiter-

of a long-standing belief that the history of world, like the six days of creation, wo consist of six millennia, and that the world been created about 5,000 years before Ch Thus, to these believers, the year 1000 rep sented the beginning of the end.

Later, however, an authority on bibl chronology recomputed the world's be nings to have been in 4004 B.C. Thus, for th who still believe the world will last for only millennia, the period around the year 200 frightening.

"We are probably in for some inte manifestations of terror as the year 2 approaches," predicts *Dr. Jaroslav Pelika* professor of history at Yale University. "I combination of factors — fundamentalis feeling that the world is old and tired and had its day, and fear of overpopulation and bomb." The date holds little threat for r Christians, such as Muslims and Buddh who observe different calendars, he po out.

Third Millennium Ball

President Ronald Reagan has accepted an invitation. George Bush invited himself. Deng Xiaoping hasn't RSVPed. And Britain's youngest royal, Prince Henry, just is not planning that far ahead.

They are all on the guest list for the ultimate New Year's eve party — a global network of celebrations planned for December 31, 1999, to usher in the third millennium A.D. at sites ranging from the pyramids to Stonehenge and the Great Wall.

The "world Millennium gala ball" is the brainchild of the Millennium Society, an association of some 4,000 "consummate optimists" from 32 countries who see the historic calendar shift as a chance to promote world harmony while having fun.

"It is about hope," the chairman Mr. Ed McNally said, explaining why he and some classmates at Yale University decided to create the society in 1979.

He said the Egyptian government has agreed to let 3,000 revellers celebrate at the great pyramid of Cheops at Giza. The British liner QE2 has been contracted to take them there.

It will leave New York on December 21, 1999 and make a port call at Marseilles to pick up several thousand bottles of champagne donated by the French champagne growers' association.

It hopes to gain permission to hold other events at India's Taj Mahal, China's Great Wall, Britain's Stonehenge, New York's Statue of Liberty and New Zealand's Eden Crater, among other famed locales.

"A multi-sensory experience," said the society organiser, Ms. Laurie Flynn. "Short of giving away the plot, I will say it's a choreography of lasers, video imaging and special effects."

In plain language, she said, that means music, fireworks, light shows, dancing, food and, of course, champagne.

The cost? Impossible to estimate so far in advance, the society says. A detailed estimate is expected in 1997 from the firm of Thomas Cooke, which is handling travel plans.

Although the original idea conceived in 1979 was to hold a reunion of Mr. McNally's class in 20 years, that became a larger enterprise when they realised it would mark the dawn of the third millennium.

"The idea caught their imagination, they developed it and things got rolling and the society was incorporated as a charity in 1983," said Mr. Scott Widmeyer, another spokesman.

Others listed by the society as having accepted invitations are comedians Bob Hope and George Burns, aged 90, who asked if he could bring a date, Robert Gale, the doctor who helped treat victims of the 1986 nuclear disaster in the Soviet Union and U.S. baseball commissioner Peter Ueberroth, who organised the 1984 Olympic Games in Los Angels.

The plan to celebrate the dawn of the third millennium as the year 2000 opens has created a stir among those who insist it really begins in 2001. But the society is sticking to its guns.

While acknowledging that 2001 is correct in the strictest sense — mathematically, 2000 is the last year of the second millennium — Mr. Widmeyer said, most people viewed the year 2000 as the symbolic milestone.

Fear of the world's end has cast a steady shadow over this millennium, Pelikan says. But unlike the predominantly religious fears of the past, which envisioned divine intervention, today's worries focus on the secular nightmare of humans unwittingly destroying themselves, possibly with nuclear weapons.

The bomb is only one product of the most frenetic and fruitful millennium in human history. Thanks to improved living conditions and medical advances, life expectancy, about 30 years in 1000, will have doubled by 2000.

The world's population will have grown from an estimated 400 million in 1000 to a projected 6 billion.

(Population growth had a setback in the 14th century when the plague wiped out at least a quarter of the populations of Europe and China; Florence, Italy, for instance, lost two-thirds of its citizens.)

The second millennium's first great burst of development in Europe was launched soon after 1000. The 12th and 13th centuries saw a surge in European art, technology, building, exploring and commerce. Notre Dame Cathedral was built in Paris. The compass, spinning wheel, windmill and watermill were brought into use. Marco Polo travelled to China, and Thomas Aquinas set himself to organise knowledge.

As the millennium unfolded, it brought an unprecedented shift in world power, from Asia to Western Europe. "Europe was an underdeveloped part of the world, to say the least, in 1000," says *Dr Ross E. Dunn*, past president of the World History Association. By the end of the 19th century, Europe dominated the world, militarily and economically. "No single civilization had ever achieved anything approaching that, and it may never happ again," Dunn says.

Columbus's discovery of America, unify the globe, was a key development of millennium. "Before that, the globe was vided into separate regions and was no single interacting whole," says McNeill. "T only possible analogy to the discovery America would be going to space and find human colonies."

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(National Geographic)

THE UNIVERSE

The Universe is infinite in time and space. We do not know when it began or when it will end. Of course, human conception of the universe (or space as is now better known) has been changing with the passage of time.

When the universe was first conceived of as an orderly unit, it was called COSMOS, as opposed to chaos, and the studies relating to the Cosmos were known as Cosmogony or Cosmology. Today we speak of them as Space and Space Sciences.

A regular enquiry into the universe was first attempted in AD 140 by Claudius Ptolemy, a Greco-Egyptian astronomer. He propounded the theory that the earth was the centre of the universe and that the sun and other heave bodies revolved around it. There have b several theories since the more important which are given below:

In 1543, Polish astronomer Copernic argued that the Sun, and not the Earth, was centre of the universe. Though the Copernic theory changed the centre of the univers did not change its extent. The Copernic universe was still equated with the So System. It took another three and a h centuries before our ideas changed furth

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As the 20th century opened, it seemed that the Milky Way galaxy with its cluster of over a hundred billion stars together with their attendant satellites the Magellanic clouds, actually represented all there was to the universe. In 1925 the American astronomer Edwin P. Hubble (1889-1953) pointed out that there were other galaxies in the universe and that the universe actually consisted of millions of galaxies like the Milky Way. In 1929 Hubble proved that these galaxies are flying away from each other and that the farther they are, the faster they fly. This meant that the universe is expanding like a balloon that is being blown up.

Looking from the Milky Way, we can find our outer galaxies receding at increasing velocities. A cluster of galaxies in the constellation Virgo, some 50 million light years away from us, is seen moving away at about 1200 km per second, while a group in Hydra, 2700 million light years away, is racing off at as much as 57,600 km per second. Our own galaxy, the Milky Way, in comparison, appears to move slowly at a modest speed of 600 km per second.

The tricky question still remains unanswered. If, as Hubble showed, the speed of galaxies increases with distance there must come a point at which galaxies fly at the speed of light. At this point we cannot observe anything. As Isaac Asimov puts it, "From Hubble's demonstration of increasing speed of recession with distance.... it would now appear that at a distance of 12.5 billion light years, galaxies would be receding, relative to us, with the speed of light. Nothing beyond that can be observed. The observable universe has a diameter of 25 billion light years and the number of galaxies it contains is uncertain."

The movement of a star or a galaxy affects its light as seen by an observer. If the star is moving towards the observer, its light will be shifted towards the blue end of the spectrum. If the star or galaxy is moving away from the observer its light will be shifted to the red end of the spectrum. This is known as the *Doppler Effect or Shift*. The Doppler shifts of galaxies show that they are receding and that the universe is in a state of rapid expansion.

Modern theories of the universe are based on this flight of galaxies, that is, on the assumption that matter is in a state of rapid expansion.

Big Bang Theory Challenged

A widely held view, forming a basis for the accepted theories of the evolution of the universe—that the present abundance of helium in the universe is predominantly the product of the primordial process of nucleosynthesis soon after the Big Bang, billions of years ago—may now face a challenge from the observations made by the Infrared Astronomical Satellite (IRAS) put into orbit by NASA in 1983.

The satellite has picked up images of a class of 'red objects' which are dust and gas-rich galaxies with very high luminosities. Their bolometric luminosities (total radiation in the entire electromagnetic spectrum which makes sense only in observations avoiding the atmospheric absorption, such as in satellites) have been found to be 10 to the power of 12 times the solar luminosity. IRAS has identified 10 such objects which radiate intensely in the infrared wavelength regions of the spectrum.

"Genuine primordial galaxies" is what Prof. Geoffrey Burbidge of the University of California, San Diego, U.S., called them, describing one such object—NGC 6240—at the International Astronomical Union (IAU) meeting in New Delhi in Nov. 1985.

These are primordial only in-asmuch as the galaxies, as seen today, seem to be in the stages of thermonuclear processes of nucleosynthesis characteristic of early universe, and are ejecting large amounts, as much as 15 per cent, of helium. Otherwise, they are relatively new events compared to the age of the universe. The radiation is believed to be coming from the heating of the dust and the gas in the galaxy.

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It is generally assumed that our universe started out as a superdense ball. It is argued that if the universe is now expanding (as Hubble has shown) it must have been, once upon a time, in a state of high compression. High compression means high density. We have, at present, no means of knowing how high the density of the original universe was.

The nearest guess is that the overall density of the universe, at that time, was comparable to the density of the nuclear fluid, tiny droplets of which form the nuclei of various atoms. It is calculated that the density of the atomic nucleus is a hundred thousand billion times greater than the density of water. If the density of the primordial universe was of this order, it follows that each cubic centimetre of space (universe) at that time contained a hundred million tons of matter.

Abbé Georges Lemaître, a Belgian astronomer priest, explained this process of expansion in what is known as *the big bang theory*. He argued that billions of years ago, cosmic matter (universe) was in an extremely compressed state from which expansion started by a primordial explosion. This explosion broke up the superdense ball and cast its fragments far out in space, where they are still travelling at thousands of kilometres per second. It is from these speeding fragments of matter that our galaxies have been formed. The formation of galaxies and stars has not halted the speed of expansion. And, as it happens in all explosions, the farthest pieces are flying the fastest.

The primordial explosion is the hallmark of the big bang theory. It also differs from other theories in two important respects.

The theory originally advanced by two astronomers, Thomas Gold and Hermann Bondi, has since received support from the British astronomer Fred Hoyle. According to this theory, which is also known as the *continuous creation theory*, galaxies recede from one another but their spatial density remains constant. That is to say, as old galaxies move apart new galaxies are being formed in the vacancies. These new galaxies are formed from new matter which is being continuously created to replace old matter that is being dispersed.

An interesting question arises here. How much new matter has to be created to compensate for the dispersion of matter by expansion? George Gamow suggests that if one hydrogen atom per litre of space is created once every billion years, it would be enough to replace matter, which is being lost continuously by expansion. This implies that comparatively very little creative work is involved in replacements.

According to the Pulsating (Oscillating) Universe theory, advocated among others by Dr Alan Sandage, among others, the universe expands and contracts alternately between periods running into tens of billions of years. Dr. Sandage thinks that some 12 billion years ago a great explosion occurred in the universe and that the universe has been expanding ever since. It is likely to go on expanding for 29 billion years more, when gravitation will halt further expansion. From then on, all matter will begin to contract or collapse upon itself in a process known as "implosion'. This will go on for 41 billion years compressing matter into an extremely superdense state and then it will explode once again. This is the latest theory of the evolution of the universe.

That the universe is expanding is today considered established. A question that remains unsettled is whether the expansion will continue for ever or whether the receding galaxies will some day stop and then reverse their motion, eventually falling together in a great collapse. The answer to this question determines the geometrical character of the universe, that is, it determines the nature of space and time. If the expansion continues perpetually the universe is 'open' and infinite; if it will some day stop and reverse direction, the universe is closed and of finite extent.

OUTER SPACE

The difference between space and outer space is that space means the whole universe including the earth while outer space means all space other than the earth. In fact, outer space begins where the earth's atmosphere ends and extends on and on in all directions.

Outer space is infinite. Our terrestrial units of measurement hardly suit its dimensions. So

The Ozone Accord

For the first time the world's major producers and consumers of pollutants accused of destroying the *ozone layer,* which protects the earth from the cancer-causing radiation in sunlight, have agreed to cut production and use of the chemicals. But the agreement is not the broad stroke many scientists and environmentalists wanted.

The accord signed in Montreal by 46 industrial nations calls for a freeze on January 1, 1990, of the levels of consumption of chloroflurocarbons (CFCs) prevailing in 1986. Consumption is to be further reduced by 20 per cent by 1994 and by another 30 per cent by 1999.

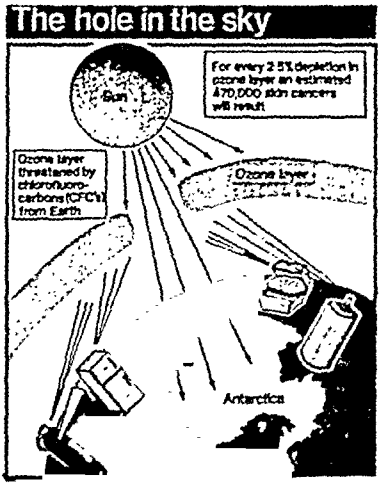
This is a significant step forward, for it means the major industrial producers have at the very least acknowledged the need for action. But there are exceptions to the agreement, which must be ratified by 67 per cent of the participating countries before it takes effect, that boil the accomplishments down to a shrivelled little gain.

Despite the consumption limits agreed by the signatories, they are allowed to increase CFC output by up to 10 per cent over the next 10 years to serve markets in developing countries.

Another exception allows the Soviet Union, which produces about 10 per cent of the world output of the chemicals but consumes much less, to freeze consumption and production at levels prevailing in 1990. The Soviets argued that under their current five-year-plan they had begun building new chemical plants which they were not about to scuttle.

There is also concern that the major industrial CFC producers may set up plants in countries not part of the agreement and begin exporting to customers whose supplies are cut when the production cutbacks take effect.

The accord was signed at a meeting convened by the United Nations Environment Programme. Executive Director Dr Mostafa Tolba has been credited with



prodding the participants into taking collective action.

Before the conference got underway, Tolba said failure to reach an agreement would be a blow to those who believe governments are capable of setting aside national self-interest to tackle environmental problems that are global in nature.

Yet it was precisely the pursuit of national self-interest that prevented the participants from reaching a much tougher agreement. The US, which for years denied the need for an international agreement, has recently been leading calls for action on CFCs. US officials were recently pressing for an 85 per cent cut in the use of CFCs.

CFCs are found in refrigerator coolants and solvents, in aerosol sprays and plastic foams used to make keep-warm hamburger cartons.

It is thought that the reversal of the US position has a great deal to do with the fact that the American chemical producer DuPont, which is a major producer of CFCs, is now making chemicals that can replace CFCs.

we have evolved new units of measurement like the *Light Year* and the *Astronomical Unit*.

A Light Year is the distance covered by light in one year in vacuum travelling at a speed of 299,792.5 km* per second or about 186,282 miles per second. A light year is thus 5.88 million-million miles

Astronomical Unit represents the mean distance between the sun and the earth, calculated on the data supplied by radars. This distance-the Astronomical Unit-has now become a key constant in determining distances in the solar system

A.U. in terrestrial measurements is approximately 93 million (92,857,000) miles or 150 million (149,600,000) km. In terms of space dimensions we may say that a Light Year is made up of about 60,000 A.Us

Light and sound are the two principal media through which we gather our impressions of the external world. Light is something we can see (visible) and sound is something we can hear (audible). This was considered an axiomatic truth till the end of the 18th century. As the 19th century broke, this simple belief was shattered. Astronomers and physicists learned that there are invisible lights and inaudible sounds. The first break came in 1800 when the British astronomer William Herschel (1738-1822) discovered infra red radiation.

When sunlight (white light) is passed through a prism, it is broken up into rays of different colours, like those of the rainbow. Traditionally, seven colours are known, which are epitomised by the acronym VIBGYOR, that is, *violet, indigo, blue, green, yellow, orange and red*. This is called the Solar Spectrum, with the violet colour at one end and the red colour at the other end. In studying the heating effects of the solar spectrum, Herschel placed a thermometer in each of the colours of the spectrum and an extra thermometer outside the spectrum at the red end.

The thermometer outside the spectrum (at the red end) showed a higher degree of heat than any other inside the spectrum. He called these rays *infra red* (below the red) rays. In 1801 the German physicist Johann Ritter (1776-1810) discovered that the rays outside the spectrum at the violet end broke down silver chloride more quickly than the rays within the visible spectrum. These came to b called *ultra-violet* (beyond the violet) rays. thus turned out that sunlight formed not only visible spectrum but also an invisible one

In 1803 Thomas Young (1773-1829), British physicist, showed that light travelled tiny waves of varying wavelengths. The wa lengths were too small to be measured l conventional scales. So Anders Angstro (1814-1874), a Swedish physicist, evolved new scale to measure wavelengths. He chose unit equal to ten billionths of a metre. This h since become known as the *Angstrom un* Ten *Angstroms* are equal to a *milli-micromet* (a thousandth of a millionth of a metre) whic in terms of modern SI units is equal to *nanometre*.

The invisible ultra-violet and infra-re radiations remained inexplicable till Jam Clerk Maxwell (1831-1879), the British phys cist, came out with his *Electro-magnetic theo* in 1870. Maxwell argued that electricity an magnetism were different aspects of a sing electro-magnetic field. Periodical variations i the electro-magnetic field produced electr magnetic radiations of varying lengths. Th visible light is only one part and for that matte a very small part of the electro-magnet spectrum. He also postulated that there can b other invisible radiations of much short wave length than the ultraviolet at one end an far longer than the wave length of the infra-re at the other

The Maxwellian theory was vindicated whe the German physicist Heinrich Hertz (185 1895) produced electro-magnetic radiation with wavelengths much longer than that o infra-red rays. These wavelengths were at firs called *Hertzian waves* but eventually came t be known as *radio waves*. Then in 189 another German physicist Wilhelm Rontge (1845-1923) discovered what he called X-ra radiation. The X-ray was later found to b much shorter in wavelength than the ultra violet

In 1896, the French physicist Henri Bec querel (1852-1905) discovered the phe nomenon of *radio activity*. Becquerel did no at that time know why or in what manner this radio activity took place. Subsequently it was found that this radio activity was caused by the atoms of the heavy metal *uranium* giving off a constant emission of radiation and particles. It was further shown that this radio activity was

* The symbol was accepted as one of the Astronomical Constants by the International Astronomical Union in 1968

also electro-magnetic in nature. Rutherford named it the *gamma ray*. The gamma ray had a wavelength even shorter than that of the X-ray.

In 1905 Einstein showed that all forms of radiation travelled in wave packets, which acted like particles in some ways. He called these packets *Photons*. The energy of the photons increases as the wavelength decreases. The wavelength is related to frequency, that is to say, the number of vibrations or waves or cycles per second. The shorter the wavelength, the higher is the frequency and the greater the energy. Thus gamma rays with the shortest wavelength (below 0.01 nanometre) are the most energetic. The energy decreases as the wave length increases, through X-ray (1 to 0.01 nm), ultra-violet (1 to 400 nanos) visible light in all the colours of the spectrum (400 nanos to 700 nanos) infra-red (700 nanos to 1 millimetre), micro waves (1 millimetre to 500 millimetres or 50 centimetres) to radio waves which have the longest wavelengths (50 centimetres to 3000 centimetres or 30 metres) and the lowest energy content.

Every object which is at a temperature above *Absolute Zero* (−273.16°C) radiates photons of all kinds. The average energy of the photons emitted increases with the temperature. We experience this heat during the peak period (noon) in visible light radiation. But even objects which are not hot enough to glow like the sun still radiate quantities of infra-red radiation, for instance, our own bodies. Even objects below our body temperature i.e. cool bodies, radiate micro waves and longer radio waves. These radiations called *thermal radiations* can indicate the temperature levels of the objects emitting them.

Radio waves are the radiations with the longest wavelengths, that is from 50 centimetres to as much as 30 metres. Objects in outer space that emit such radiations are called *radio sources*.

The atmosphere is like a sieve which allows only some wavelengths from outer space to reach us. Sunlight forms one group of waves which come down through the atmosphere. This includes not only the visible light but also a part of the invisible light, namely the near ultraviolet (400 to 300 nm) and the near infrared (700 to 2500 nm). This is one of the windows that open out on outer space.

The other window is called the *microwave window*. It covers all wavelengths from one millimetre to 30 centimetres. The existence of the microwave window was not particularly noticed or studied till 1932 when Karl Jansky of the Bell Telephones announced that he had received radio messages from outer space.

ASTRONOMY

Modern astronomy began with the Italian astronomer Galileo. In 1609 Galileo heard of the telescope made by the Dutchman Hans Lippershey. He improved upon it and constructed a similar instrument that could magnify upto thirty diameters.

It was this instrument, which was a *refractor telescope*, that opened up the field of optical astronomy. Galileo made several startling discoveries. He found that the Moon's surface is rugged, and that Pleiades is a group of over 40 stars. He discovered four of Jupiter's moons and observed the sunspots.

In 1668 Newton invented a new instrument, *the reflector telescope*. In a refractor telescope, light is gathered by a large objective lens. In a reflector telescope a large curved mirror is used for this purpose. Both these types of optical telescopes are still in use.

The invention of the optical telescope was an epoch making event in the history of astronomy. The instrument so caught the fancy of the astronomer and the layman alike, that all advanced countries vied with one another in building bigger and bigger telescopes.

Radio Astronomy came into being in the most unexpected manner. In 1931, Karl Jansky, an American radio engineer working in Bell Telephone Laboratory, noticed a steady stream of radiation coming in from outer space. It is strange that professional astronomers of the time paid little attention to this discovery. However, it attracted the attention of an amateur radio operator in the U.S. Grote Reber, who set out by himself to learn more about this extraterrestrial phenomenon. He worked singlehanded for nearly ten years, studying the sky and analysing radiations. In

193", he built the world's first *radio telescope* – a 31 feet 5 inches parabolic dish– and set it up in his backyard at Wheaton, Illinois. In 1940 he produced a radio map of the sky, the first of its kind in the world. Thus a new branch of astronomy was opened–Radio Astronomy.

The radio telescope is in many ways analogous with the optical telescope. It consisits of a large metal reflector fitted with an antenna. The metal reflector collects and focuses radio energy on the antenna which can be tuned to any desired frequency. A sensitive radio receiver picks up the radiation from the antenna and records it. This is analysed in a computer and studied.

All types of radiated energy are electromagnetic in nature. They differ from one another in wavelength and frequency. Much of the radiation like X-rays, gamma rays, ultra violet rays and the like are absorbed by the atmosphere and reflected back into space. All the same, a persistent stream of radiation reaches the earth. This includes a steady, weak but quite perceptible background radiation called *continuum radiation* which is being received from all parts of the universe. Recent research has shown that this background radiation may hold the key to the formati and destruction of stars and galaxies.

In the sixties satellite technology t astronomical investigations farther afield. U then astronomical studies were entir ground-based. Now satellites made it possi to study astral phenomena from above atmosphere. Thus astronomy came to studied from two levels – from the ground from above the atmosphere. This led to emergence of many specialised fields in as nomy – X-ray, Ultraviolet, Gamma ray Infra-red.

Radar astronomy was born in 1940, whe Hungarian physicist Zoltan Bay sent ou beam of micro waves to the moon detected the echo. It is really a part of r astronomy since micro waves can rightly considered a part of the electromagn spectrum.

A new generation of "super telesco being designed for mountaintops around world can usher in a golden age of astron by the early Nineties.

At least seven mammoth optical telesco four on drawing boards in the United Sta are now being planned. Each of which have more than twice the light-gathe capacity of today's biggest devices.

Behind the spurt in jumbo telescopes several radical new ideas on how to b them. Ever since the dedication of the inch Hale telescope –still the world's pre optical device–atop California's Mt. Palom 1918, astronomers thought that they reached the technical and financial limi big telescope construction.

The reason, the mirrors. They effect determine the power of a telescope. bigger the reflector, the more light it collect from objects in space. Yet a m much larger than Hale's wouldn't hol shape because of its weight.

Astronomers have been able to offset problem somewhat with advances in li detection systems. Electronic detectors record more than 60 times the numbe photons (massless subatomic particles transmit light) collected by mirrors than t of 20 years ago. But advances in these sys are fast approaching their limits. Thus need for bigger telescopes altogether.

One emerging idea is to use many piec glass fitted together like a mosaic instea

Largest Telescope

Work is on in full swing for the construction of the world's largest telescope, the Keck telescope, scheduled to take its first look at the heavens in 1990.

Being constructed at Mauna Kea in Hawaii at above sea level it will be unique in more than just its size.

Instead of using a mirror shaped from a single piece of glass, it will combine 36 hexagonal mirror segments to create the equivalent of a single mirror 10 m wide, effectively doubling astronomers' capability to explore the universe.

The telescope's design depends on newly developed mirror manufacturing techniques and a sophisticated control system that twice each second will align the honeycomb mirror array to an accuracy of a millionth of an inch.

The California University will bear the telescope's operating cost of 3.5 million dollars annually.

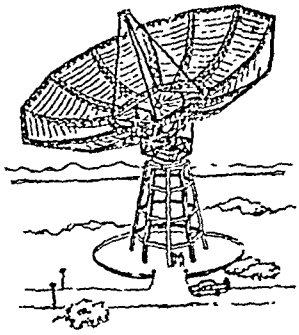
World's Largest Radio Telescope

The Government of India has approved a Rs. 260 million project to build the world's largest and most versatile radio telescope operating at metre wavelengths—the Giant Metre-wavelength Radio Telescope. Construction of the GMRT at Narayangav near Pune is to be completed by 1992. It will be run jointly by the Radio Astronomy Centre of the Tata Institute of Fundamental Research and the Physics Department of the University of Poona.

According to Govind Swarup, Director of the Radio Astronomy Centre: "For a radio telescope of this kind, it is a now or never situation.... In the near future, the only suitable site for it will be the other side of the Moon!" One of the main reasons why such a huge radio telescope has not yet been built in the West is that man-made radio interference is so rampant. The GMRT will be in a location where hardly 100 radios are in operation. It will fill a longstanding gap in astrophysical studies due to the absence of a giant radio telescope operating at this wavelength.

The Y-shaped configuration of the GMRT will be spread over an area of 25 kilometres. Each arm of the Y will be 14 kilometres long with an array of six antennas. At the centre of the Y will be a square, each 1-kilometre side having four identical antennas. These 34 antennas are to be fully steerable parabolic dishes 45 metres in diameter, operating in a tuneable wavelength range of 7.9 to 2 metres with simultaneous reception at 92 and 49 centimetres.

The effective collection area of this highly sensitive telescope, which is likely to resolve radio objects as small as a few arc seconds, will be 60000 square metres. This is about twice the area of the world's largest single radio telescope, at Arecibo in Puerto Rico, and eight times the collecting area of the biggest array, the Very Large Array (VLA) in New Mexico. "This configuration of the GMRT is a marriage of the VLA and the Arecibo," says Swarup, "with advantages of both." But this labour-intensive facility will cost less than a fifth of Arecibo or the VLA.



One of the 34 steerable dish antennas

Some new techniques will be employed to keep the cost of the GMRT low. The reflecting surfaces of antennas will be "see-through" meshes of stainless steel wires which will reduce weight and wind resistance. "We are likely to use technology utilised for suspension bridges and large sports stadium—never tried before for any radio telescope," says Swarup. "Ropes will be used to support the mesh structure. It will be the Indian rope trick in action!" A parallel processing computer system is being developed to compensate for the ionosphere's disturbing effect on metre wavelength radio waves.

When completed, the telescope is likely to search for evidence in support of the big bang model of the Universe, and to throw light on the formation of galaxies and quasars, short period pulsars, flare stars and solar radio bursts. Apart from discovering hundreds of pulsars, the telescope will provide thousands of high-resolution maps of galactic and extragalactic radio sources. "One of the chief aims of the GMRT will be to search for the red-shifted 21-centimetre line radiation of the neutral hydrogen clouds that are expected to have formed before galaxies and their clusters came into being," adds Swa-

1937, he built the world's first *radio telescope* – a 31 feet 5 inches parabolic dish– and set it up in his backyard at Wheaton, Illinois. In 1940 he produced a radio map of the sky, the first of its kind in the world. Thus a new branch of astronomy was opened–Radio Astronomy.

The radio telescope is in many ways analogous with the optical telescope. It consists of a large metal reflector fitted with an antenna. The metal reflector collects and focuses radio energy on the antenna which can be tuned to any desired frequency. A sensitive radio receiver picks up the radiation from the antenna and records it. This is analysed in a computer and studied.

All types of radiated energy are electromagnetic in nature. They differ from one another in wavelength and frequency. Much of the radiation like X-rays, gamma rays, ultra violet rays and the like are absorbed by the atmosphere and reflected back into space. All the same, a persistent stream of radiation reaches the earth. This includes a steady, weak but quite perceptible background radiation called *continuum radiation* which is being received from all parts of the universe. Recent research has shown that this background radiation may hold the key to the formatio and destruction of stars and galaxies.

In the sixties satellite technology toc astronomical investigations farther afield. Unt then astronomical studies were entire ground-based. Now satellites made it possib to study astral phenomena from above th atmosphere. Thus astronomy came to b studied from two levels – from the ground ar from above the atmosphere. This led to th emergence of many specialised fields in astr nomy – X-ray, Ultraviolet, Gamma ray ar Infra-red.

Radar astronomy was born in 1940, wher Hungarian physicist Zoltan Bay sent out beam of micro waves to the moon a detected the echo. It is really a part of rac astronomy since micro waves can rightly considered a part of the electromagne spectrum.

A new generation of "super telescop being designed for mountaintops around t world can usher in a golden age of astrono by the early Nineties.

At least seven mammoth optical telescop four on drawing boards in the United Stat are now being planned. Each of which v have more than twice the light-gather capacity of today's biggest devices.

Behind the spurt in jumbo telescopes several radical new ideas on how to bu them. Ever since the dedication of the 2 inch Hale telescope –still the world's prem optical device–atop California's Mt. Paloma 1948, astronomers thought that they reached the technical and financial limit big-telescope construction.

The reason: the mirrors. They effecti determine the power of a telescope. bigger the reflector, the more light it collect from objects in space. Yet a mi much larger than Hale's wouldn't hold shape because of its weight.

Astronomers have been able to offset problem somewhat with advances in lig detection systems. Electronic detectors r record more than 60 times the number photons (massless subatomic particles transmit light) collected by mirrors than th of 20 years ago. But advances in these syste are fast approaching their limits. Thus need for bigger telescopes altogether.

One emerging idea is to use many piece glass fitted together like a mosaic instead

Largest Telescope

Work is on in full swing for the construction of the world's largest telescope, the Keck telescope, scheduled to take its first look at the heavens in 1990.

Being constructed at Mauna Kea in Hawaii at above sea level it will be unique in more than just its size.

Instead of using a mirror shaped from a single piece of glass, it will combine 36 hexagonal mirror segments to create the equivalent of a single mirror 10 m wide, effectively doubling astronomers' capability to explore the universe.

The telescope's design depends on newly developed mirror manufacturing techniques and a sophisticated control system that twice each second will align the honeycomb mirror array to an accuracy of a millionth of an inch.

The California University will bear the telescope's operating cost of 3.5 million dollars annually.

Large Radio Telescopes

Location	Description	Appro. Effective Area in sq.m	In operation since
Jodrell Bank, Manchester, UK	Dia. 76 m Parabolic dish	3.0×10^3	1957
Green Bank, West Virginia, USA	Dia 92 m Parabolic dish	4.5×10^3	1962
Parkes, Australia	Dia. 64 m Parabolic dish	2.3×10^3	1962
Arecibo, Puerto Rico	Dia. 300 m Spherical dish	3.0×10^4	1964
Green Bank, West Virginia, USA	Dia. 42 m Parabolic dish	1.0×10^3	1965
Lake Traverse, Ontario, Canada	Dia. 46 m Parabolic dish	1.1×10^3	1966
Udagamandalam, India	530 m NS×30 m EW Parabolic Cylinder	8.0×10^3	1970
Effelsburg, West Germany	Dia. 100 m Parabolic dish	5.5×10^3	1972
Zelenchukskaya, North Caucasus, USSR	Ratan 600, 895 panels mounted on a circle of dia 576 m.	1.4×10^3	1974

casting a single continuous concave surface. A version of the approach devised by astrophysicist Jerry Nelson and colleagues at the University of California, is to be used in the new Keck Observatory.

This 390-inch telescope is likely to be the first of the new extra-large instruments to come on line. If completed by 1992, as envisioned, the Keck telescope will be the world's largest-nearly twice as big as Palomar and capable of detecting a candle on the moon. Developed by the University of California and the California Institute of Technology (Caltech), it will sit atop lava-studded Mauna Kea, an extinct volcano in Hawaii.

The main mirror of the telescope contain 36 hexagonal pieces, each 6 feet w and 3 inches thick. A computerised positi ing system will keep them moving in con with up to 100 adjustments possible second, down to 1/1000 the width of a hu hair. Although not yet tested on a large s the "segmented mirror" scheme should y other benefits as well. Because the mirrors sit on lighter supports, the 10-metre telesc will probably weigh less than one-third o Hale telescope. A shorter focal length – thus a stubbier barrel – will mean t smaller dome can house it. (Domes account for one-half the cost of an obs tory).

GALAXIES

Galaxies are huge congregations of stars that hold together by force of gravity. They are so big that they have sometimes been called 'island universes'. Galaxies seem to be scattered in space. But there are many clustered into groups.

When the expanding material of the universe broke up in the first instance, billions of islands of gaseous matter were formed in space. These gaseous islands or *Proto-galaxies* rotated, each with its own speed of rotation. Those with very low rotational speeds assumed nearly spherical shapes. Others assumed elliptical forms with varying de of elongation, depending on their rota speeds. Most of these gaseous islands, h er had such high rotational speeds that bodies were flattened out into the sha discs, from whose edges spiral arms stre The centre of the galactic disc was forme multitude of proto-stars rotating on r circular orbits around the centre of the g whereas the spiral arms were forme highly diluted, dusty gas streamers which caught in the general rotation and twisted into the shape of spirals. The ga

have thus come out in different shapes and sizes.

As the gaseous islands were settling down, local condensations—*proto-stars* – developed at many points within the galaxy. These condensations began to contract under their own weight into dense gas spheres. As a result of this contraction, the temperature of the gas spheres rose steadily and their heated surfaces began to emit heat waves and then visible light of shorter wavelengths.

As the central atmosphere of these contracting proto-stars reached the ignition point–say 10 million degree centigrade–contraction stopped, thermonuclear reactions began and millions of bright burning globules of gas emerged–the stars. When the stars appeared, the originally cool and dark proto-galaxies were transformed into the bright stellar galaxies that they are today.

A structural analysis of the known galaxies brings out three major forms—*Spiral, Elliptical* and *Irregular*. Spiral galaxies have a central nucleus with great spiral arms trailing round it. The Milky Way and the Andromeda Galaxy belong to this group. A special type of spiral galaxies is what are called *barred spirals* which have a central bar as a nucleus. The spirals comprise some 80 per cent of the galaxies so far known. Elliptical galaxies show purely elliptical shape without any spiral arms. They range in shape from spherical ellipticals to extremely saucer–shaped ones and account for about 17 per cent of the known galaxies. Irregulars, as the name suggests, show no definite geometric pattern or shape.

It has been suggested that irregular galaxies are young galaxies, while spiral galaxies are middle aged and elliptical galaxies old.

Most of the observable galaxies seem to be scattered in space more or less at random but there are numerous cases of galaxies clustering into groups, which may contain as many as several hundred individual galaxies. Our own galaxy, the Milky Way, belongs to a cluster of some 24 galaxies called the 'local group'. This group covers an area of about 3 million light years in diameter.

The two nearest galaxies are the Large Magellanic Cloud and the Small Magellanic Cloud, so called after the world navigator Magellan who first spotted them. The Large Cloud is about 155,000 light years from us with a maximum diameter of some 40,000 light years and contains some 5 to 10 billion star The Small Cloud has only a population of 1 t 2 billion stars.

The two largest galaxies in the group are th Milky Way and the Andromeda galaxy, both o them spiral. Andromeda galaxy (M 31) is o special interest to us, because it appears th our galaxy and M 31 are actually approachin each other at a rather modest speed of som 50 km per second.

Thhe Local Group is a term loosely applie to indicate our galaxy and its nearby galaxie The Group now (1980) numbers around tw dozen. Some like the *Maffei* are even su pected to be outside the group.

The latest known member of the group is *dwarf galaxy* discovered by the Siding Sprin Observatory in Australia. It is in Carina an consists of a loose swarm of very faint stars. I appearance it resembles the Sculptor and th Fornax systems. It is estimated to be abo 500,000 light years away.

Ten New Galaxies

US astronomers have discovered 10 unknown Galaxies, hidden behind the Milky Way, and expect to detect several thousand more in this region of space.

The discovery, reported at a meeting of the American Astronomy Society, was made by Mr. Frank Kerr of the University of Maryland, using a radio telescope at Green Bank observatory in West Virginia.

Mr. Kerr acknowledged that the 10 galaxies were a mere speck compared to the millions of systems already mapped, and the billions as yet unknown.

However, he said, the discovery was important because it was the first success in a new technique to probe the third of space hidden by the light, gas and dust of our own galaxy.

To find the 10 galaxies, between five and 50 million light years from the earth Mr. Kerr's team monitored radio signals.

THE MILKY WAY

The Milky way is our home galaxy. A peculiar feature of this galaxy is a bright band of light that runs almost in a perfect circle through it. Milky way belongs to a cluster of some 24 galaxies called 'the local group'.

As seen from the earth this band looks like a river of light flowing through the sky. Actually it is made up of millions of scintillating stars which from this distance seem to be placed in close proximity to one another. Modern westerners have called this river of light the Milky Way. The name is now applied to the galaxy as a whole.

The Milky Way had so fascinated our ancestors among all nations that they had given it pretty names and had woven fanciful legends about it. The Yakuts of Central Asia called it 'the footprints of God' and the Eskimos 'the path of white ashes'. The ancient Greeks called it 'the road to the palace of the Heavens', the Chinese, 'the celestial river' and the Hebrews, 'the river of light'. The ancient Indians, not to be outdone called it 'the Akash Ganga' or 'the Celestial Ganges'.

Legend has it, that in response to the insistent prayers of a devotee Bhagiratha, God Siva brought the Akash Ganga down and allowed a trickle of it to fall on the Earth. This trickle formed the earthly Ganga (River Ganges), which thus remains even today, sacred to Hindus all over the world.

The Milky Way is a spiral galaxy. The main body of the galaxy is a disc 100,000 light years across with a globular nucleus of about 16,000 light years in diameter, and far-stretching spiral arms (in one of which our solar system is located). The galaxy consists of over a hundred billion stars rotating about the centre in a stately average period of some 230 million years.

The principal gravitational force that controls this rotation is produced by the star clouds at the centre which have a total mass of about 50 billion suns. The mass of the enti Milky Way is calculated to be a little more th 100 billion times the mass of the Sun.

The stellar population of the Milky Way made up of three categories of stars. Fi there are the stars in the hub and spirals of t Milky Way. The sun belongs to this group stars. These groups are called *Open or galac clusters*. Beyond the disc and the open cl ters, lie the halo stars. Many of these stars fo miniature galaxies, containing tens thousands of stars. These are called *globu clusters*. They contain very old stars. Beyo the globular clusters there are several mill individual stars, that run round rakishly on outskirts of the Milky Way. All these form of the galaxy.

The centre or the nucleus of our galaxy i completely obscured by dust clouds that cannot learn anything about it through op telescopes. What little we know about nucleus has been collected by radio scopes.

Our galactic nucleus is about 32,000 years from the Sun. It appears to be a rot disc of gas. In this rotating disc ma activities are going on. One such seen activity is very near the centre of the ga Here, new stars are being born contin The area is already crowded with full g stars. The stellar density here is of the ord a million stars per cubic parsec (3.26 years). It means that while we on earth see only one really bright star (Sirius) at n any watcher in the central disc can million stars like Sirius, with a total lumi of about two full moons. That is to sa centre of our galaxy is perpetually flo

Dr Joseph Weber of the Universi Maryland thinks that a Black Hole' dom the centre of our galaxy. One of his e ments showed powerful gravity waves en ing apparently from our galactic centre.

STARS

Stars account for 98 per cent of the matter in a galaxy. The rest 2 per cent consists of interstellar or galactic gas and dust in a very attenuated form. The normal gas-density between stars (interstellar gas) throughou galaxy, is about one-tenth of a hydrogen per cubic centimetre (cm^3) volume.

Stars tend to form groups. Lone stars

on their own are the exception rather than the rule in the universe. Single stars do not number more than 25 per cent of the stellar population. Double stars account for some 33 per cent. The rest are multiple stars. Antares in Scorpio is actually two stars. Capella and Alpha Centauri comprise three stars each, while Castor consists of six stars.

Stars which appear single to the naked eye are sometimes found to be double stars or binaries in the telescope. These are two stars revolving around a common centre of gravity. They are found in orbital motion round each other, in periods varying from about one year to many thousands of years.

When the hydrogen in a star is depleted, its outer regions swell and redden. This is the first sign of age. Such stars are called Red Giants. Our star, the Sun, is expected to turn into a red star of this type in another 5 billion years.

Red Giants are appropriately named. They have gigantic dimensions. Betelgeuse, for exameple, has an actual diameter of 300,000,000 miles, about 350 times the diameter of the sun. Mira, another red giant, has a diameter of 400,000,000 miles.

Variable Stars are stars that show varying degrees of luminosity. *Delta Cephei,* the first of this type of stars, was noticed in 1784 by the deaf and dumb English astronomer John Goodriche. He found that Delta Cephei had a regular fluctuation of brightness every 5 days and 9 hours. Stars of fluctuating luminosity, thus came to be called *Cepheid Variables.* In stars of this type, high luminosity fluctuates between periods as small as a few hours to as long as 1000 days or more. Generally speaking, the slower the bright-dull-bright cycle, the higher is the luminosity.

Novae and Supernovae are stars, whose brightness increases suddenly by 10 to 20 magnitudes or more and then fades gradually into normal brightness. The distinction between the two types has not been precisely explained. It would appear that they differ in degree and not in kind. The sudden increase in brightness is attributed to a partial or outright explosion. In novae, it seems that only the outer shell explodes, whereas in supernovae the entire star explodes. Novae occur more frequently than supernovae.

Supernovae are stars whose brightness increases to 20 magnitudes or more. As Prof. C.F. Powell puts it, "The whole structure of the star is blown to pieces, it flares up in brilliance so that its intrinsic luminosity for the first thirty days following the explosion is equal to about 1000 million of our suns."

About one star in 100 explodes like this. In our galaxy of some 100 billion stars, a supernovae explosion may occur once in a hundred years. An exploding star or supernovae releases more energy than a billion suns and ejects a lot of matter into space, at a velocity very near to the velocity of light. Some supernovae may leave a super dense core which rotates at high speed and may thus transform itself into a pulsar.

Four supernovae had been identified in historical times, all before the invention of the telescope. They were noted in 1006, 1054, 1572 and 1604.

The 1006 and 1054 supernovae were identified by oriental astronomers. The 1006 supernova appeared towards the end of April 1006, in the constellation of Lupus. Initially, the star was as bright as Venus. It continued to be visible at night for longer than a year. Although no remnant of this supernova is visible, radio emissions from its remnant were identified in 1965. The 1054 supernova, of which detailed descriptions survive in Chinese chronicles, is described "as a guest star". It is said that this supernova outshone the sun for many days and turned night into day. The Crab nebula is taken to be the remnant of this supernova.

The supernovae of 1572 and 1604 were noted by two European astronomers, Tycho Brahe and Johannes Kepler. According to Tycho, the 1572 supernova was brighter than any other fixed star and even brighter than Jupiter. The remnant of this supernova was not traced until 1952. [illegible] the remnant was located as a strong source of [illegible]. The supernova of Kepler (1604), attained a brightness equal to, if not greater than, that of Jupiter. It was visible by day for a month and by night for a whole year. The remnant of this supernova has also been identified as a radio source.

The most recent supernova [illegible] in our galaxy took place in [illegible] in the constellation of Cassiopea. [illegible] [illegible] explosion [illegible] astronomers. The supernova [illegible] 1948 from its radio [illegible] named Cassiopeia [illegible]

SOLAR SYSTEM

The solar system is centred in the Sun. The Sun is the head of a family of 9 planets—*Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune* and *Pluto*—, not less than 46 satellites accompanying the planets, hundreds of asteroids and thousands of comets.

The Solar system is tucked away in a corner of the Milky Way at a distance of about 30,000 to 33,000 light years from the centre of the galaxy.

The solar system originated in a primitive solar nebula-a rotating disc of gas and dust. It is from this rotating disc that the planets and the rest of the solar system evolved.

The term *planets* is derived from the Greek word *planetes*, meaning wanderers. Unlike the stars, which are visible in their fixed positions in the sky always, the planets shift their positions and sometimes even disappear from view. Therefore they came to be called planets or wanderers. The first known planets were named after the Roman gods–*Mercury, Venus, Mars, Jupiter* and *Saturn*. The other planets, when they were discovered later, were also named according to the old pattern– *Uranus, Neptune* and *Pluto*.

The planets are divided into the inne planets and the outer planets. The inne planets are Mercury, Venus, Earth and Mar The Earth is the largest of the inner planet and the densest of all planets. All the inne planets are dense rocky bodies and ar collectively called terrestrial planets, becaus they resemble the Earth. The outer planet Jupiter, Saturn, Uranus and Neptune are ver big, with large satellite families. They ar composed mostly of such elements as hy rogen and helium. These planets are calle Jovian, after Jove, the Greek name for Jupite because they resemble Jupiter in many thing All of them rotate furiously, wear den atmospheres and consist of far lighter el ments than the earth–like–or terrestrial inn planets.

The outermost planet Pluto is in a class itself. It is supposed to be a dense planet li the inner planets, although it is the farthest the outer planets.

Rotating on their own axes, the plan revolve round the sun in long elliptical orb

THE SUN

The Sun is one of the stars in the Milky Way. Modern estimates place the Sun at a distance of about 32,000 light years from the centre of the galaxy. The Sun and the neighbouring stars generally move in almost circular orbits around the galactic centre at an average speed of about 250 km per second.

The Sun at this rate takes 250 million years to complete one revolution round the centre. This period is now called a *cosmic year*.

Like all other stars, the Sun is composed mainly of hydrogen. Its energy is generated by nuclear collisions in its interior. It is calculated that the sun consumes about a trillion pounds of hydrogen every second. At this rate, it is expected to burn out its stock of hydrogen in about 5 billion years and turn into a red giant. The prospect is frightening.

When the sun turns into a red giant, it will have swelled a hundred times in diameter and increased a thousand times in brightness– bright red. It will then occupy about 25 p cent of the horizon. The nearest plan Mercury and Venus, will melt. The oceans the earth will evaporate and disappear. T earth will remain a barren rock, heated to melting point of lead. All life on earth cease. The Sun will survive as a red giant, about a hundred million years more, slo dissipating its enlarged outer shell leavin tiny core. This core will be a faint, wh dwarf-sun no larger than the present pla Mars. Around this tiny star, the burnt-out ea will continue to revolve.

The glowing surface of the sun, which see, is called *Photosphere*. Above the pho sphere, is the *Chromosphere*, so called cause of its reddish colour. Beyond this la is the magnificent *Corona* of the sun whic visible during eclipses.

Between the chromosphere and the corc spectroscopic investigations have identifie

THE PLANETS' POSITIONS IN SPACE

Sun. Centre of our solar system, 100 times the diameter of Earth.

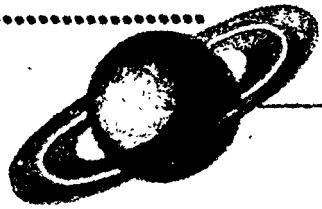
Mercury. Diameter 4,880 Km (3,030 miles) Nearest planet to the Sun-57.9 million Km. (36 million miles)

Venus. Diameter 12,104 Km (7,521 miles) Lies 108.2 Km (67 million miles) from the Sun.

Earth. Diameter 12,756 Km. (7,296 miles). Has one satellite, the Moon, and is 149.6 million Km (93 million miles) from the Sun.

Mars. Diameter 6,787 Km (4,200 miles). Last of the rocky planets; has two satellites and is 227.9 million Km. (141.5 million miles) from the Sun.

Jupiter. Diameter 142,800 Km (88,700 miles). Separated from Mars by a vast belt of asteroids. It has at least 16 satellites and lies 778.3 million Km (483.5 million miles) from the Sun.



Saturn. Diameter 120,000 Km (75,000 miles). Circled by at least 21 satellites; lies 1,427 million Km (885.5 million miles) from the Sun.

Uranus. Diameter 51,800 Km (32,200 miles). Lies 2,869 6 million Km (1,782.5 million miles) from the Sun and has six satellites.

Neptune. Diameter 49,500 Km (31,000 miles). With its four satellites it lies 4,496 6 million Km (2,800 million miles) from the Sun.

Pluto. Diameter 3,000 Km one satellite. The outer averaging 5,900 million million mi

•represents number of satellites

distinct, very narrow boundary zone known as the transition region. The temperature of the photosphere is about 11,000°F, that of the chromosphere about 18,000°, that of the transition region about 180,000°, and that of the corona, which extends far into space, about 2,700,000°, hot enough to emit X-rays (The density of the gas in each layer decreases with increasing altitude, just as the earth's atmosphere thins with height. The corona, accordingly, is the least dense of the Sun's layers)

At the core of the sun where thermonuclear reactions take place the temperature level is around 15 million degrees K. The density at the core is estimated at a hundred times that of water. Outside the core is the convection zone. Here, like the boiling water in a kettle, turbulent motions of gases transport the energy that is generated in the core towards the photosphere.

The visible white light of the corona is made up of a continuum of colours, such as violet, *indigo, blue*, green, yellow, orange and red. Super-imposed on this continuum are hundreds of dark lines called the *Fraunhofer lines*. Each line indicates some element present in the solar atmosphere. The intensity and width of the lines reveal the temperature and density of the element.

The sun is constantly emitting streams of its substance (mainly hydrogen) as protons (nuclei of hydrogen atoms) in all directions. Sometimes these emissions are massive. They are then seen as *prominences* which send huge bouts of incandescent material upward from the sun's surface. Sometimes these eruptions roll out of the atmosphere of the sun for many miles, when they are seen as solar *flares*. The solar flares are spectacular big ionised gas rolling out as enormous clouds, 20 to 40 times the size of the earth at speeds of around 100 km per second through Corona the outer layer of the sun's atmosphere. Some of the most spectacular solar flares seen in recent years occurred on Feb 28, 1942, Nov 19, 1949 and Dec 13, 1971.

A less spectacular but persistent stream of protons is blowing out of the corona and sweeping over the whole solar system. In 1958, the American physicist Eugene Norman Parker, called this outward stream of protons the *solar wind*. Recent researches through satellites have shown that the solar wind is made up of a plasma, that is, ionised ga mostly hydrogen and helium, containing nea ly an equal number of protons and electron It flows outward from the Sun at superson speeds, around 400 m a second. Apparentl this wind sweeps through the whole sol system to a distance of 40AUs from the Su which coincides with the very limits of t planetary orbits.

Owing to the sun's rotation, the solar wi travels in spirals and carries with it magne fields. The Earth's magnetic field–the magn tosphere–acts as a shield against the ev blowing solar wind and deflects it away fr the earth. Nevertheless, particles of solar wi sometimes pierce the magnetic shield a enter the upper atmosphere, where, like solar flares, they cause auroral displays.

The solar wind distorts the shape of magnetosphere. The magnetosphere exte to a distance of 64,000 km above the earth- times the radius of the earth. On that par the earth exposed to the sun (the sunlit sid the solar wind sweeps along the magne phere past the earth. On the other side of earth (the night side), the solar wind c verges again and compresses the magn field into a plume or tail, more or less what it does to comets. The tail thus forr extends to over six million km on the n side of the earth. The particles of the s wind and also those from the deep space trapped in the tail and travel back and f endlessly.

Sunspots are dark patches noticed on surface of the sun. They appear dark bec they are cooler (around 1500°C) than surface of the sun which has a temperatu about 6000°C. The largest spot ever meas (April, 1974) covered 7000 million sq mil approximately 0.7 per cent of the sun's vi surface. The life periods of these spots vary. They may last from a few hours to n weeks.

They show strong magnetic fields and r a maximum every 11 years. During the m imum of a sun spot period, the sun sh marked activity in shorter Wave lengths' X-rays and ultraviolet radiations. Freq solar eruptions and solar flares occur. Th produce great reactions on the earth an atmosphere such as ionospheric disturban magnetic storms, interruptions of radio c munications, unusual auroral displays an

lowering of the average cosmic ray intensity.

Solar Statistics

* Distance from the Earth	149.8 million km.
Absolute Visual Magnitude	4.75
Diameter	1392000 km
Core Temperature	15000000 K
Photosphere Temp.	5770 K
Rotation as seen from the Earth	25.38 days (at the Equator) 33 days (near the poles)
Chemical Composition	Hydrogen 71% Helium 26.5% Other Elements 2.5%
Age	About 5 billion years
Expected lifetime of a normal star.	About 10 billion years

** The mean distance from the Earth to the Sun (159 million km) translated into flying hours means that a jet aircraft capable of 1000 km/hr. would need more than 17 years of non-stop flying time to reach the Sun*

Polar Auroras are two auroras, the *Aurora Borealis* or Northern Lights and the *Aurora Australis* or Southern Lights. These are lights that sweep across the sky in waves or streamers or folds. They are very often multi-coloured and provide one of the finest spectacles in nature. They occur in the Arctic and the Antarctic regions respectively. But the Northern Lights can be seen as far south as New Orleans in America and the Southern Lights as far north as Australia.

The auroras are chiefly caused by sunspots, which are magnetic storms on the surface of the sun. These storms discharge electrified particles into space. The Earth's magnetic poles attract these particles. Consequently, the north and south poles are the radiating centres of these electromagnetic displays.

The electrified particles from the sun cause gases in the upper atmosphere to vibrate and glow in colours peculiar to them, just as a neon sign glows when electric charges pass through it. The causal relation between sunspots and auroras has been doubted, because the interval between the two was always erratic and never uniform. This has now been explained by the discovery of the magnetosphere.

The magnetosphere is the earth's magnetic shield. It was at first called the *Van Allen Belts* after the American physicist, James Van Allen who discovered them in 1959. Van Allen in analysing the data from the earlier Explorer and Pioneer rockets found two belts of high intensity radiation in the upper atmosphere. Pioneer 12 later showed that these belts were a part of a larger band of radiation called the magnetosphere. It extended far out to about 40,000 miles from the earth's surface.

Here the protons and electrons that shoot out from the sun are caught and held by the magnetism of the earth. The upper belt with its centre, some 1500 miles from the earth, does not touch the atmosphere.

THE PLANETS

Mercury is the planet closest to the Sun and the smallest. It was believed that the period of Mercury's rotation on its own axis corresponded with its period of revolution, like that of the Moon. Recent radar readings, however, have shown that Mercury rotates on its own axis in 58.65 days while it takes 88 days to complete one revolution round the Sun.

This means that Mercury spins three times (3×58.65 days) for every two revolutions (2×88 days) round the Sun. The result is that when Mercury is in the most favourable viewing position, we see nearly the same face with the same markings. This is how the mistaken notion that its period of rotation is the same as its period of revolution arose.

According to Gerard Kupier, Mercury originally was probably twice as massive as it is today but the Sun evaporated away half of its substances. The lighter, more volatile elements escaped, leaving a heavy planet, that is probably about 30 per cent metals. It is 5¼ times as dense as water. Even today Mercury bathes constantly in the ferocious heat of the Sun. When it is closest to the Sun, temperature reaches 650°F on the equator though it

obably drops during the long night to minus °F.

t is doubtful if Mercury has an atmosphere. th low gravity (one-third of the Earth's) and gh temperatures, atoms and molecules of most all gases must have escaped into the terplanetary space leaving Mercury devoid atmospheric gases.

Venus, the planet closest to the Earth, is also e brightest object in the sky, barring, of ourse, the Sun and the Moon. Named after ie Roman goddess of beauty, Venus is popuarly known as a star—as the *Evening Star* and ie *Morning Star*. It is slightly smaller than the arth, being some 300 miles less in diameter. 'enus, unlike most other planets, rotates ackward. Because of the combination of the low backward motion and the 225 days it akes the planet to make one orbit round the un, Venus sees the Sun rising in the west very 117 days.

Many of the popular notions regarding Venus have been radically altered by the space probes of Venera 4 (Oct. 1967), Venera 5 and 6 (May 1969), Mariner 2 (Dec. 1962) and Mariner 5 (Oct. 1967). These probes have proved that Venus is a very hot planet—possibly the hottest of planets. Its temperature at the equator may go as high as 1000°F. At such a temperature, lead, tin and zinc will melt and a number of compounds will vaporise. But at the top layers of Venusian clouds temperature drops to minus 35°F. Here, we have a very interesting phenomenon—a red hot planet wrapped in clouds of ice, with freezing temperatures above and boiling temperatures below.

A curious feature of Venus discovered by the Russian Venera series 7 and 8 is that both the night and day temperatures are nearly the same. This means that heat is being transported from the day side to the night side. Strong winds in the higher atmosphere seem to be the carriers of heat.

While the highest clouds on the Earth seldom go above 10 miles, Venus has a thick layer of clouds, about 35 miles high. They block much of the sunlight.

The atmosphere of Venus is also unique, consisting as it does almost entirely of carbon-dioxide (90 95 per cent). It has a pressure of a hundred terrestrial atmosphere (100 times the pressure of the Earth's atmosphere). This is equal to the pressure of water more than half a mile under the sea.

Venus has no satellites like Jupiter, no rings like Saturn and no ice caps like Mars. It has a very weak magnetic field, 3/10,000 of the Earth's magnetic field and has no radiation belt like Van Allen Belt.

The Earth

(See the Earth)

Mars, named after the Roman god of war, is the fourth planet from the Sun. When Mars is favourably situated it is brighter than most of the stars and is definitely red, which has earned for it the surname the Red Planet. Mars has polar caps similar to those of the Earth and because the Martian axis is tilted at almost the same angle as the Earth's, its polar regions are exposed to sunlight in alternation, giving each hemisphere summer and winter.

The relative orbits of Mars and the Earth bring them very close—a little more than 35 million miles—on two occasions about 2 years apart and then remove them far apart for another 15 years. In September 1956, Mars paid one of its close visits to the Earth and the next in 1971.

The pictures that Mariner 9 has sent down show that Mars is internally alive and more like the Earth than the Moon, with volcanoes, greater than any on the Earth, canyons and dusty basins, jumbled uplifts and fractures.

Mightiest of the Martian mountains is *Nix Olympica* (the snow of Olympus), a volcanic mountain that embraces a vast caldera or crater 40 miles across. It is the highest point on Mars, standing some 15 miles above the plain, nearly three times as high as Mount Everest.

The Viking mission to Mars in 1976 was intended to find out if there were any signs of life on Mars. Viking I landed on Mars on July 20, 1976 and Viking II on Sept 3, 1976. The experiments conducted by them have shown that there is no sort of life on Mars.

Mars has two small satellites, which have been named *Phobos* (Fear) and *Deimos* (Terror), after the legendary attendants of the war god, Mars

Jupiter is the giant among the planets. Its mass is 71 percent of the total mass of planets. It has one and a half times the volume of all the other planets combined. But its mean density is only one-fourth of the Earth's—a low value characteristic of all the Jovian planets

Jupiter appears to have stopped halfway to becoming a star. It was too massive to solidify as a planet but not massive enough to develop nuclear fusion' and become a star. It has thus come to possess both stellar and planetary characteristics. Jupiter's star-like features are two. It gives off more energy than it receives from the Sun – two or three times as much. All planets draw from the Sun whatever energy they possess. Jupiter also emits random bursts of intense radio energy at long wave lengths. It is the most powerful radio object in the solar system, next to the Sun. No other planet is known to possess radio energy of its own. In all other respects Jupiter resembles the other planets.

Much of Jupiter's mass is made up of atmosphere 25,000 miles deep. The atmosphere consists largely of hydrogen and helium which explain the low density of the planet—roughly .one-fourth of the Earth's density. Methane and ammonia which are formed when hydrogen joins with carbon and nitrogen respectively are also present in the atmosphere. It is thought that the Jupiter has the primordial atmosphere of the Earth–hydrogen, methane, ammonia and water-from which life originated on Earth. It is quite possible that a similar process of life has started on Jupiter.

The atmosphere of Jupiter is marked by a series of stripes which go round the planet. Astronomers have counted 5 bright stripes and 4 dark gray stripes.

Jupiter is hot inside. At the core, temperature may go up to 25000°C which is more than four times the surface temperature of the Sun (6000°C).

Jupiter has 16 satellites. The biggest four satellites Io, Europa, Ganymede and Callisto, were discovered in 1610 by Galileo. They are now collectively called Galilean satellites. The 14th planet discovered in 1979 is the smallest of the satellites. It has tentatively been named 1971 J1. It is only a few dozen km in diameter and is about half-way between the surface of Jupiter and the orbit of Amalthea. Amalthea and the four Galilean satellites travel in circular orbits around Jupiter. The remaining satellites are much smaller and travel in irregular orbits.

Saturn is the outermost planet visible to the naked eye. With a rocky core of the size of the Earth, Saturn is the second largest planet (next

Two More Planets

How Many planets are there, Nine, ten or eleven?

Astronomers in 1987 announced the discovery of two more planets in addition to the already known nine – Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto.

The tenth one - unnamed - is orbiting the Sun between 16,000 and 32,000 million kms away. Five times as massive as the Earth, it takes at least 700 years to make one round of the Sun.

Mercury, Verius, Mars and Pluto are small planets like the Earth. But the new one is as large as Uranus and Neptune.

While this was announced by NASA scientist John Anderson, European Astronomers Dr. Richard West and Dr. Lutz Schmadel announced the discovery of a minor planet that was lost 50 years ago.

The planet named Mally *orbits the Sun once every four years and 84 days in a path between Mars and Jupiter.*

Pluto discovered in 1930 was the last of its kind known till date. Uranus was discovered in 1781 and Neptune in 1846.

According to noted Indian scientist Dr. J.J. Rawal *of the Nehru Planetarium, Bombay, the latest findings are only the confirmation of his own discovery about a decade back. They were recorded in his research paper published in the* Bulletin of the Astronomical Society of India, *1978.*

Dr. Rawal is also credited with the discovery of rings and satellites around Jupiter, Saturn, Neptune, Uranus and Sun which had been later corroborated by Pioneer *and* Voyager 1 *and* Voyager 2.

to Jupiter) but the least dense. It has a density of only 0·69 less than that of water.

Compared to its neighbour Jupiter, Saturn looks unexciting. The two planets are considered very similar–giant balls of hydrogen and helium with hot interiors that provide much of the heat that drives their winds and determines their weather. However, Voyager I has shown that Saturn does have a minor version of Jupiter's Great Red Spot. It has also white ovals and bands of lighter and darker clouds like Jupiter's. Both planets have strong Jet Streams racing round their Equators. Saturn's Equatorial Jet is, however, three times broader than Jupiter's. Its winds are three times stronger too – at speed of a thousand miles an hour.

The most spectacular feature of Saturn is its system of rings. This has mystified all astronomers from Galileo downwards. The discoveries of Voyager I have only deepened the mystery. Says Bradford Smith, the leader of the team that scans Voyager images, "The mystery *of the rings keeps getting deeper and deeper* until we think it is a bottomless pit." The Voyager has upset practically all notions of Saturn previously accepted as correct.

Saturn has the biggest family of satellites – a total of 21. Of these 10 were known by 1976. The others were identified by earth-based telescopes and Voyagers I & II from 1979 to 1981.

Titan, Saturn's biggest satellite, is known to have an atmosphere. But since Titan is covered up by dense clouds, it is not possible to see what its surface looks like. Titan's atmospheric pressure is 1·6 times that of the Earth. Titan's diameter is also found to be only 5140 km, much lower than the previous estimates.

Uranus is not visible to the unaided eye, but may be seen through good field glasses. It has six satellites, *Ariel, Umbriel, Titania, Oberon and Miranda*. All of them are comparatively small.

In 1977 astronomers aboard the Kuiper Airborne Observatory found that Uranus is surrounded by a system of five very faint narrow rings. These rings named Alpha, Beta, Gamma, Delta and Epsilon were at distances of 25,630, 25,910, 26,170 and 26,990 miles respectively from the centre of Uranus. The four inner lines – Alpha, Beta, Gamma and Delta – are each about 8 miles wide while Epsilon is many times broader.

All rings are well inside 40,000 miles fro Uranus, which is the Roche's limit for Uranu that is, the limit within which a large satelli would be torn apart by tidal forces.

Uranus was identified as a planet in 1781 William Herschel and has completed only o revolutions round the Sun since its discove This chill methane planet is 14½ times massive as the Earth and has a temperature about 170°C. It takes some 84 terrestrial ye to circle round the Sun and its day is 10 ho 49 minutes. The equator of Uranus is tilte 98° to the plane of its orbit with the result t it practically rolls on its sides as it revol round the sun and exposes its polar regi (north and south) to whatever light warmth the Sun gives in periods of 42 y each.

Neptune, between 2900 and 2700 mil miles from the Earth, is also visible thro good field glasses.

The planet was discovered in 1846, result of calculations made independentl two astronomers, Adams in England an Verrier in France. These calculations gave position of an unknown planet which responsible for the perturbations in the tion of Uranus. The planet was found on Sept. 1846 in the neighbourhood indicate Gottfried Galle of the Berlin Observato appears to be a pale green orb, no bri than an 8th magnitude star.

Neptune has four satellites. Of these T goes round in a retrograde orbit.

Pluto the outermost planet and removed the earth by a distance between 4700 and million miles is visible only through a scope. This planet was finally locate February 1930 after a long arduous sear C.W. *Tombaugh at the Lowell Obser* Arizona. (USA)

Pluto is a tiny sphere, a little larger Mercury and revolves eccentrically bet 4600 and 2700 million miles from the S has one satellite. Its orbit is interlaced that of Neptune. This has led some astro ers to believe that it is "a run-away" satel Neptune. An existing Neptunian satelli ton, also appears to have escaped Nept hold in the first instance, but has been br back. This is supposed to be the reaso Triton goes about in a retrograde opposed to that of Neptune.

THE MOON

The Moon is the only satellite of the Earth. But it is a satellite of distinction. For, it is the only satellite in the solar system far too big to be a satellite. All other satellites have sizes below ⅛ the size of mother planets. But the moon is about ¼ the size of its mother planet, the Earth.

The incompatibility of the relative sizes of the Earth and the Moon, and their separate existence at such close quarters led to the conjecture that the Moon is not a true satellite but was captured by the Earth during a close approach to the Earth. This theory known as the *Spouse Theory* states that the Moon came from elsewhere in the solar system and sweeping too near, it was snared by the Earth's gravity and "married"- that is, locked into orbit. The second theory known as the *Daughter Theory* says that the Earth once rotated so rapidly that it became blimpshaped and was torn into two, the smaller blob, entering into orbit as the Moon. The third theory–the *Sister Theory* –suggests that the Earth and the Moon were formed more or less at the same time from the original wheeling cloud of cosmic gas that ultimately condensed into the planets and the satellites.

The Moon has a diameter of 2159 miles as against the Earth's 7900 miles. But it has a surface less than half that of the Atlantic Ocean. Therefore its gravitational pull is about one-sixth of the Earth's. Because the orbit of the Moon about the Earth is not circular but elliptical, the maximum distance (apogee) which the Moon may keep from the Earth is 252710 miles and the minimum distance (perigee) 221463 miles. The Moon revolves round the Earth in 27⅓ days (27 days 7 hours 43 minutes and 11.47 seconds) and rotates on its own axis in exactly the same time. This is why we see only one side of the Moon.

To our unaided vision the near side (front side) of the Moon seems to be made up of bright and dark patches. The bright parts are the mountains and highlands that catch the Sun's rays, while the darker patches are low-lying plains. These were once thought to be seas (marias) and named accordingly, though the Moon is devoid of water. The craters are depressions caused by the onslaught of meteors. They vary in size. As if to make up for lack of oceans such as we have on Earth, the Moon has raised high sharp-peaked mountains, many of them rising to 20,000 ft. The highest of these are Liebnitz Mountains, near the Moon's south pole, which rise to 35,000 ft.–higher than Mount Everest.

The Moon has no atmosphere, as its gravitational power is too weak to hold down gases. This causes many strange phenomena. There is no twilight, the day dawns suddenly, as there is no atmosphere to be lit up before the Sun comes over the horizon. There is no sound either, as sound is a vibration transmitted through air.

Temperature on the Moon reaches extremes. During daytime the temperature rises to 100°C, at night it comes down to minus 180°C.

The Moon along with the Sun is responsible for the tides. The Moon, being nearer to the Earth than the Sun, exerts a greater influence on the tides. It takes only 1.3 seconds for moonlight to reach the Earth, whereas sunlight takes as much as 8 minutes 16.6 seconds to reach us. This being so, the ratio of lunar and solar power for tide-raising is 11 to 5.

Apollo XI which landed two men on the Moon in July 1969 has blazed a new trail in man's exploration of space. It has enabled man to step on to the surface of the Moon–a possibility that the wildest legends of early times had discounted. USA has followed up this initial success by Apollo XII, Apollo XIV, XV, XVI and XVII.

Meanwhile, USSR sent up the unmanned Luna 16 (Sept.12, 1970) and Luna 17 (Nov 19,1970). Luna 16 picked up Moon soil samples and returned to the Earth on September 24, 1970. Luna 17 carried the Moon buggy Lunokhod 1, which roved the surface of the Moon. It was an eight-wheeled vehicle, which carried apparatus to study the lunar surface and radioed back the results to the Earth.

All these manned landings on the Moon and the investigations of the unmanned spacecraft like the Lunas, haven't solved the lunar puzzles. The question of the origin of the Moon and whether it is a daughter, sister or spouse of the Earth still remains unsettled.

How cloud bound Earth looks to an astronaut orbiting round the Moon's far side

However, the oldest rocks and soil samples brought back by the Apollo astronauts have shown that the Moon is about the same age as the Earth and was formed about 4600 million years ago

Among the 6 Apollo missions that actually landed on the Moon, the first two were confined to the maria or low-lying portions and the others to highlands and areas of varied terrain like rills (narrow valleys) The Apollo missions have brought back nearly 800 pounds of lunar rocks which are being analysed and studied

The most striking aspect of the Moon's appearance is the abundance of craters on its surface. They range in size from circular basins 1000 kilometres (about 620 miles) in diameter down to craters measuring less than a few metres or feet across. The majority of these craters have been produced by a continuous rain of meteorites over the eons.

The earth has also been subjected to meteoric bombardment, but the erosive action of winds and water, volcanic activities and earthquakes have obliterated evidences of meteoric impact on the Earth. Because these forces are absent on the Moon's surface lunar surface has preserved a record d back to the time of the Moon's format

The first landing sites (Apollo 11 and were *mare* areas. The rocks from this turned out to be basaltic lava, simil volcanic rocks found on Earth.

Moon's Size and Motions

Mean distance from the Earth	238,855
Diameter	2159.9
Diameter in terms of the Earth's diameter	0.
Mass in terms of that of the earth	1
Density in terms of water	
Density in terms of the Earth	(
Ratio of gravity to gravity at the Earth's surface	
Fraction of Moon's surface always invisible	

A surprising finding was the occurrenc high percentage of titanium. While terr igneous rocks contained only about 1 pe of titanium, the lunar rocks showed 10

as much. A few minerals unknown on earth were found in the mare basalts. Among these is *Armalcolite,* a new name derived from the names of the astronauts-*Armstrong, Aldrin* and *Collins* and the name of the area *Tranquillitis.*

The lunar rocks were bone-dry, with no trace of water in any form. Neither did they contain any trace of any organic matter. So also, volatile elements (elements with low boiling points) like Sodium, Potassium, Chlorine, Germanium, Lead and Mercury were practically non-existent. The depletion of Sodium and Potassium is significant, because these two are among the most abundant elements found in terrestrial rocks.

The oldest rock recovered from the Moon was found at *Descartes* highland where Apollo 16 landed. It is 4.25 billion years old. On our present evidence this may be taken as the earliest date on which the surface of the Moon solidified.

Moonquakes as recorded by seismometers left by the Apollo Missions, run into hundreds. Some are the results of meteor impacts, others are landslides of the inner slopes of craters. But many are true lunar quakes. The magnitudes of these quakes, however, go up only to 2 on the Richter scale with 1.5 the smallest tremor that can be felt.

One peculiarity of these moonquakes is that they occur most often when the Moon approaches closest to the Earth.

COMETS

The word Comet is derived from the Greek aster *kometes* meaning long-haired star. The long hair is the tail which looks like hair blowing in the wind. The head or the *coma* is the star.

Comets have been associated with disasters from the earliest times. It is not known how comets alone, of all astral bodies, came to be treated as portents of evil.

Most astronomers have now come to believe that comets are primordial remnants of the formation of the solar system. They have their home in the cold outer fringe of the solar system away from the outermost planet. In this cold dark domain, where the Sun looks no brighter than a distant star, millions of cometary nuclei are congregated. Most of them are a mile or so in diameter though some may reach diameters of 50 miles or more.

Here, the comets are non-luminous and have no tails and move slowly in enormous orbits around the far distant Sun. But now and then, gravitational changes (e.g. the gravitation of the stars they pass by) shake out some comets from their slow orbits. Some of these move out into the interstellar space and are lost to the solar system. Others move into the solar system eventually to become the brilliant long-tailed comets that we see from the Earth.

Structurally, a comet consists of three parts, a nucleus, a head and a tail. The *nucleus* is a tiny object, only a few kilometres in dimensions. It is made up of ice contaminated with various compounds like ammonia and dust and gas. It reflects sunlight and appears as a bright spot in the centre of the head. The *head* is comparatively big extending up to a million kilometres. It is made up of gas and microscopic dust particles. The *tail,* which is the distinguishing feature of the comet, is much larger than the head, extending to a length of 20 to 30 million kilometres.

The comet does not possess its typical head and tail when it is far away from the Sun. The head appears when it comes near Jupiter's orbit, and the tail develops when it crosses the orbit of Mars. The evaporation of the solid ice material around the nucleus, when the comet approaches the Sun, is responsible for the appearance of the head. At the same time, solar wind is driving away the gaseous matter attached to the head. This explains the streaming tail.

A comet may have three kinds of orbits. If the comet approaching the Sun does not have enough speed to overcome the Sun's gravity, it will settle down in an *elliptical* orbit like our Earth. A comet which has just enough speed to counter-balance the Sun's gravity will take on a *parabolic* orbit. If a comet is fast enough to overcome the Sun's attraction, it will desc a *hyperbolic* orbit and escape into interst space.

Comets that keep re-appearing in the

system are said to be *periodic* comets. As they come near the Sun, they whip around it at enormous speeds and shoot away from the Sun, with their tails pointing ahead.

The periodic comets are divided into two categories, the short period group and the long period group. The short period group has periods of less than 200 years each. The long period groups have periods going up to thousands of years.

Halley's Comet, named after the English astronomer Edmund Halley, reappears every 76.3 years. The Great Comet of 1811 comes back once in 3000 years, the comet of 1844 in something more than 100,000 years while the comet of 1864 takes as much as 2,800,000 years to return.

It is estimated that the solar system may contain as many as 100,000 comets. But most of these stay at home, so to speak. Only very few comets stir out into interplanetary space and move around the Sun. Till 1974, according to an official catalogue, starting with Halley's Comet in 87 B.C., 611 comets were reported. Out of these, 513 are long period comets and the remaining 98 are of short period. Sixty-five of these have been sighted more than once since they were noticed first. The most frequent visitor is Encke, first seen in 1786. Its period is so short (3.3 years) that it has returned 65 times since then.

SPACE EXPLORATION

Space exploration is almost three decades old now. It started with Russia's 'Sputnik' and America's 'Explorer'. Man reached Moon in 1969 to walk on lunar soil. Then came the Space Stations called the 'Skylab' and the 'Salyut'. Man learned to walk in space without ... ers and retrieve and repair lost satellites.

Space travel has opened up a new dimension in man's study of the Universe. Astronomers can now photograph in close-up the Moon and planets, which 20 years ago they could only see dimly through the dense blanket of the Earth's atmosphere. Even though observatories have been established on mountains 2,000 m (6,600 ft) or more in height astronomers on Earth are still hampered by the blurring and filtering effect of the atmosphere that remains above the mountains. Only by going into space can they achieve the clearest view of the sky, and also detect radiations, such as X-rays and ultra-violet light, that are blocked by the highest levels of the atmosphere.

Because space satellites make it possible to detect radiation from outer space at wavelengths formerly out of range, astronomy is undergoing a revolution similar to that which followed the invention of the telescope. Most spectacular of the new objects being studied are the pulsing, bursting, and erupting sources observed by X-ray satellites, caused as matter pours from ordinary stars on to small, compressed *Neutron Stars* or, in some cases, *Black holes*, orbiting them.

The Space age began on October 4, 19... when Russia launched *Sputnik 1* into orbit and this was followed a month later by *Sputnik 2* which carried the dog *Laika*. Measurements of the animal's heartbeats, temperature and other reactions, radioed to Earth, suggested that human beings might also survive prolonged periods in space.

The first US satellite, *Explorer 1*, did not follow until January 31, 1958, but its instruments made the first major discovery of the space age - the Van Allen radiation belts around the Earth, where electrons and protons from the Sun are trapped by the Earth's magnetic field. Soon after, probes were sent to explore the Moon and planets, and on the way they detected the *Solar Wind* of sub-atomic particles streaming from the Sun.

Mankind's first look at the Moon's far side came with the pictures from the Russian *Luna 3* in October 1959. The US *Mariner 2* in 19... flew past Venus, confirming both its high temperature and the reverse direction of its rotation which had been suspected by astronomers. In 1965, *Mariner 4* sent back remarkable photographs revealing craters on Mars. The work of the early space probes has been extended and improved by later planetary explorers, culminating in remote-controlled landings on the Moon, Venus and Mars – the last in a search for the possibility of life

Ariane Puts Europe Back in Lead

The successful launching of an Ariane-3 rocket in September 1987, put Europe back in the lead of the lucrative commercial space market.

"We're all wearing smiles," said Frederic d'Allest, president of Arianespace, the commercial arm of the European Space Agency. "A failure would have been a heavy blow."

The rocket, grounded for 16 months after two successive failures, placed a European and an Australian communications satelite into orbit about 20 minutes after lift off at 0045 GMT on September 16 from a launching pad in Kourou, French Guiana.

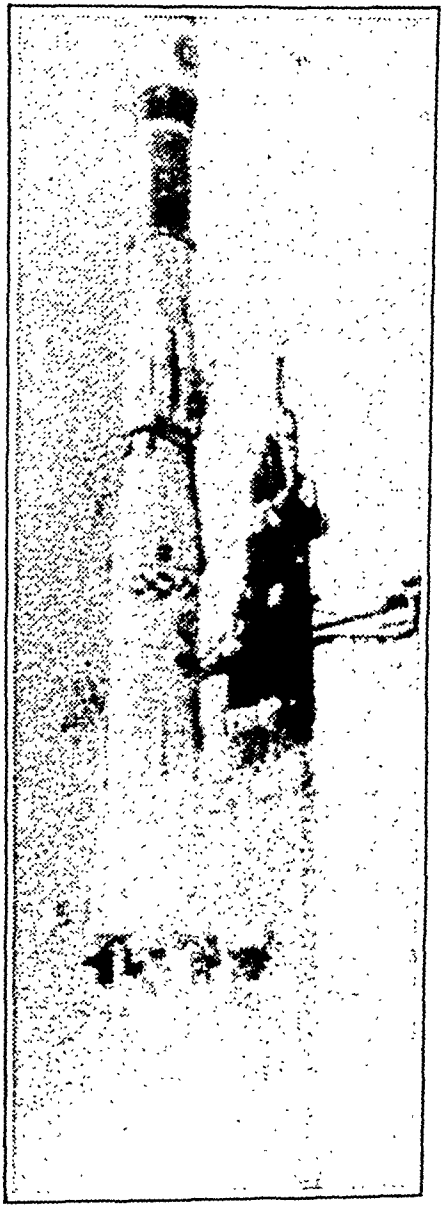
The fiery exhaust from the 160 foot (49-metre) high, 240-ton Ariane brightened the evening sky over the humid savanna between the jungle and the Atlantic Ocean, where the 13-nation European Space Agency has its launching base just north of the equator on the northeast shoulder of South America.

The performance of the Ariane mission puts Arianespace in a position of world leadership in delivering commercial payloads to orbit. Arianespace, founded in 1980, promotes itself as the "world's first commercial space transport company."

Since the loss of the space shuttle *Challenger* last year, the United States has been without a commercial launching capacity. Since then, the Reagan administration has barred NASA from soliciting commercial customers for the shuttle, which is not expected to begin flying again before next June at the earliest.

Close to the heel, the United States used unmanned Delta rockets to loft a few medium-weight military payloads, and the U.S. Air Force aggressively moved to order dozens of new Titan rockets. But none of these rockets will be available for commercial use.

Of the present contracts, 21 are for European satellites, both for commercial customers and for the European Space Agency's sceince missions. Nine are for launchings of American private satellites, mainly communications satellites. Other customers include communications organizations, Canada, Australia, India and Japan



SPACE FIRSTS

- First man to propound the space flight Laws: Sir Issac Newton (1642-1727) in his book 'Mathematical Principles of *Natural Philosophy*'.
- First artificial Satellite put into orbit: USSR's 'Sputnik' ('Fellow Traveller'), Launched on October 4, 1957 and weighing 83.6 kg., it attained an altitude of 22859 km at a velocity of 28565 km/h.
- First Manned Satellite: USSR's Col. Yuri Gagarin took off in a 4.65-ton space vehicle 'Vostok' ('East') on April 12, 1961 to complete a single orbit of the Earth in 89.34 Mins
- First woman in Space: USSR's Lt. Col. Valentina Tereshkova went to space in *'Vostok 6'* on June 16, 1963. She completed 48 orbits in 2 days 22 hr. 42 min. Svetlna Savitskaya of USSR became the 2nd woman on Aug. 19, 1982 and Sally Ride of U.S. the 3rd woman on 18 June, 1983.
- First 'Walk' in space: Astronaut Edward H. White floated free outside the space vehicle, 'Gemini IV', for 21 minutes on June 3, 1965.
- First Indian to reach space: Sq. Ldr. Rakesh Sharma in joint Indo-Soviet flight on 3rd April 1984

Probes are now swooping closer to the Sun than ever before to study solar activity, while others are pushing the boundaries of exploration out to *Jupiter* and beyond. Plans are being made to intercept one of those ghostly wanderers of the solar system, the comets.

Manned Missions account for only 3% of the 2,400 or so spacecrafts which were launched in the first 23 years of the space-age. The first man to be launched into space was the Russian *Yuri Gagarin* who orbited the Earth once on April 12, 1961. Later Russian cosmonauts, including the first space woman, *Valentina Tereshkova*, (June 16, 1963) were able to stay in orbit for up to five days.

American astronauts made more modest flights in their smaller *Mercury* spacecraft, but in 1965 began the series of two man *Gemini* flights that overtook the Russian lead in the space race. The team of astronauts in the Gemini programme practised rendezvous manoeuvres, docking procedures and space walks in preparation for the coming *Apollo* missions to the Moon.

In a Gemini capsule the astronauts had less space than in the front of a small car. The three-man Apollo, however, was relatively roomy, with sufficient space for the crew to move about and even to stand upright. The vital part of Apollo so far as landing on the Moon was concerned was the four-legged *Lunar Module*, in which two men touched down on the Moon. *The first Moon landing, by Neil Armstrong and Edwin Aldrin from Apollo 11, took place on 21 July, 1969.*

A total of 12 Americans walked on the Moon during the Apollo programme, bringing back 380 kg of rocks and soil. These samples from the Moon, along with scientific measurements made on the surface and from the orbiting mother craft, have helped scientists to piece together a detailed picture of our nearest neighbour in space.

Although no more Moon trips are currently planned, men will eventually return to the Moon, probably setting up small scientific bases like those in Antarctica, from which geologists will continue their study of the Moon and astronomers will observe the sky. Such 'colonies' might also mine the Moon's crust for minerals.

Eventually, *a manned flight to Mars* may be planned, although not before the beginning of the next century. A round-trip to Mars would take a year or more, and would probably be undertakien by a crew of six, flying in two spacecrafts. Possibly the Mars flight will be a joint venture, with cost and construction shared between two or more nations, in the same way that the USA and Russia worked together to achieve the *Apollo-Soyuz link-up* in July 1975.

In the *Skylab space station*, and its smaller Russian counterpart called *Salyut*, astronauts have begun to extend the surveys of Earth resources and astronomical observations begun by satellites. The three Skylab crews, each of three men, brought back a total of 72 km (45 miles) of magnetic tape logging instrumental results, 46,000 Earth resources pictures, and 175,000 images of the Sun taken through the special Skylab solar telescopes

Space stations allow scientists and engineers

After Concorde a Super-Concorde

The Concorde

The Concorde jet, dismissed until recently as a technological Dodo, is starting to look like the herald of a brighter future for supersonic air travel.

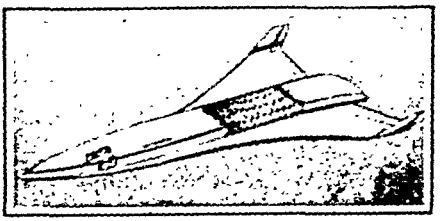
The Concorde is proving to be a modest commercial success for the two airlines that operate it. And, in the nondescript office block at the Toulouse airport where the original Concorde project took shape in collaboration with British designers, a successor generation of faster-than-sound aircraft is seen as a possibility for the 21st century.

In the United States, the *Orient Express* program to develop a *national aerospace plane* to link America and Asia at hypersonic speed is under way with strong presidential backing.

In Toulouse, Aerospatiale, the state-owned company that built the Concorde with British Aerospace, has drawn up plans for a bigger super-Concorde, and it is carrying out research on a much faster *"Avion a Grande Vitesse"* or AGV, that could in theory be in service in the first quarter of the next century.

British Aerospace is also working on plans for a hypersonic reusable space vehicle, code-named Hotol, that could be developed into a passenger aircraft.

Aerospatiale engineers say the sleek 100-passenger Concorde, which can fly at 1,350 miles an hour, more than twice the speed of sound, was an idea that may have come before its time. "You have to remember it was designed around the time of the Boeing 707", said Jean Marqueze-Pouey, the head of Aerospatiale's advance research department.



The Super-Concorde

Although, if built today, its take-off weight could be reduced by a third, to 120 tons, and its powerful engine roar muted to meet subsonic noise regulations, the original Concorde—designed in 1962 and in service since January 1976—"is still a very modern aircraft," Mr. Marqueze-Pouey said.

Looking 10 years ahead—the time needed to develop new variable cycle engines—it would be possible to build a longer-range and quieter second-generation Concorde that would carry twice as many passengers as the existing version, Mr. Marqueze-Pouey said, yet be no more expensive to operate than Aerospatiale's 310 series Airbus now in operation.

Designers on both sides of the Atlantic are looking beyond the supersonic generation to a new breed of global hypersonic aircraft that would have enough range and speed to link major population centers in America, Europe and Asia within a couple of hours.

The Orient Express concept being explored by the National Aeronautics and Space Administration and the Defense Department, for example, could cut flight time from Washington to Tokyo from 13 hours to perhaps two.

take advantage of the conditions of weightlessness and total vacuum when developing new manufacturing processes. Without gravity, for example, perfect crystals can be grown of materials for electronic components such as transistors. Materials that do not mix under gravity, for example oil and water, form a perfect blend in weightlessness.

Metals can therefore be fused, then cooled and solidified to make new alloys unattainable in Earth. Space conditions can also be used to produce ultra-pure chemicals such as vaccines, or make possible studies of cell growth that may throw new light on biological malfunctions such as cancer.

Before the promising applications of space can be fully exploited, the cost of space launches must be brought down. This has been the incentive for the development in the USA of a new transportation scheme called the *Space Shuttle*. The Shuttle's main component is a re usable spacecraft, *the Orbiter*, which is launched by means of rockets but can glide back to Earth like an aircraft, landing on a runway.

The winged Shuttle Orbiter is the size of a modern jetliner, with a cargo bay 18.3 m (60 ft) long and 4.6 m (15 ft) wide which can carry up to 29.5 tonnes into orbit. The shuttle can therefore launch several satellites at a time, and bring others back to Earth, if necessary, for repairs.

Each Shuttle Orbiter will be re-used up to 100 times largely replacing conventional rockets which can be used once only. It is hoped that the Shuttle's re usability will bring down the cost of space missions by about 90%. The Shuttle Orbiter's first test flight into orbit, with a crew of two, took place successfully in April, 1981.

The first Space Shuttle 'Columbia' reached orbit on April 12, 1981 - the 20th anniversary of man's maiden trip to Space. Shuttles Columbia, Challenger, Discovery and Atlantis achieved many firsts in space exploration and research. Shuttle 'Challenger' took Sally Ride, the first U.S. woman, to space on June 18, 1983. The first night flight, launched on August 30, 1983, carried also America's first black, Guion S. Bluelord, who performed space exercises under the eye of Space Physician William Thornton, aged 54, the oldest astronaut to make a space journey.

Atlantis, the fourth and final member of the NASA's Shuttle fleet was launched on October 3, 1985. It deployed two bomb-shielded, jam-proof Air Force Communication Satellites.

In November 1984 Shuttle succeeded in retrieving two malfunctioning Satellites, namely Palpa B-2 and Westar-6. These Satellites could be used again. Shuttle made successful retrieval and repair of Satellite Solar Max in April, 1984. For this historic feat astronauts had to get out of the Spacecraft and 'walk in space' for as long as 6 hours and 44 minutes.

The American space programme received a set back on January 29, 1986 when their *Space Shuttle Challenger* exploded in mid-air, 75 seconds after lift off. The crew — six astronauts and a woman school teacher named Christa Mcauliff — all died.

America was shocked into disbelief that their space programme was so ill-conceived. After 25 years of space exploration and 55 missions, the U.S. faced space history's worst disaster. With so many safety devices built into the 1.2 billion dollar spacecraft and repeatedly tested during the previous 24 successful flights of the shuttle in five years, it was beyond imagination that something would go wrong with the booster rocket.

This was precisely what happened when the ghastly tragedy took place. The seven astronauts were promptly declared "national heroes". In the aftermath the NASA itself was overhauled. Vice-Admiral Richard Truly, astronaut for 14 years, replaced Mr. Jesse Moore as Director of the Shuttle programme.

Challenger tragedy was a set back not only for the U.S., but also for many other countries including India which had programmed multi-purpose satellites to be launched by the US shuttles. President Reagan ordered to build a new shuttle.

Meanwhile the Soviet Union went further ahead with her spectacular spacefeat. On February 20, 1986 it launched a new orbital space station called *Mir* (peace) described as a third generation space laboratory from Baikonur Cosmodrome in Kazakhstan. It joined the *Salut-7* space station that has been in orbit around the Earth since April 1982.

'Mir' is a multi-modular station which can

:ommodate six spacecrafts at the same ne. Two Soviet cosmonauts were laun-ed to space on *Soyuz T-15* on March 13, 86 for a rendezvous with 'Mir'. The craft ›cked with the space station the next day. r the first time in Soviet space history, the tire launch was televised live throughout e world.

The Salut crew, Leonid Kizim and Vlad-ir Solovyov, conducted several experi-ents including flying from one space ation to another. They flew to Salut-7 from ir, spent 50 days on board and flew back ıccessfully.

Both the Soviet stations have orbits on e same plane some 3000 km apart but the ıuttle takes more time than a trip either ay with earth because the space ship oyuz uses the laws of the celestial mecha-cs—changes orbits—for the shuttle in anoeuvres designed to save fuel.

Salyut-7 is in the near-earth orbit for four ear's during two of which it has been ıanned by nine crews including an Indian ıd a French cosmonaut.

Both the Soviet cosmonauts returned to Earth on July 16 after spending 125 days in space.

Cosmonaut Yuri Romanenko set a space endurance record after he ended his 35th week aboard space station *Mir* on October 2, 1987. The earlier record of 237 days was set by compatriots Kizim, Solovyov and Atkov in 1984.

The European consortium, China, Japan, India and Brazil are also going ahead with their space programmes.

The European Space Agency, an 11 country consortium had a setback on May 30, 1986 when the Ariane rocket exploded after take off from Kourou, French Guiana carrying with it a telecommunication satellite. However, they made a come back by successfully launching two telecommunication satellites by one rocket on September 15, 1987 from the same site.

China is looking for foreign customers for a launch programme—only Sweden has accepted so far—and a Japanese project is on the drawing-board.

(India's Space Programme: See India)

THE EARTH

The earliest systematic theory of the Earth was the geocentric (geo=Earth) theory. According to this theory, the Earth is the unmoving centre of the universe, round which the Sun and the stars and all other heavenly bodies revolve.

One of the earliest proponents of this theory was Euodoxius of Cnidos, circa (Halies) 360 B.C. Many Greek philosophers disagreed with this view. Aristarchus of Samos (310-230 B.C), for example, held that "the fixed stars and the Sun remained unmoved, that the Earth revolved round the Sun on the circumference of a circle, the Sun lying at the centre of the orbit". However, the ideas of Aristarchus and others like him never gained currency.

The final formulation of the theory was made by Claudius Ptolemy, a Greek astronomer of Alexandria. He brouhgt out an encyclopaedic work on astronomy in about 140 A.D. This work, later known by its contracted Arabic name *Almagest*, remained the Bible of astronomy for another 1400 years. Looking back, it seems incredible that such a fallacious theory should have ruled for so long a time. Actually the theory enjoyed this longevity because it had two attractive features. First it agreed with the apparent (not real) movements of the heavenly bodies. This satisfied the popular minds. Second, it flattered man's vanity to think that his abode—the Earth—was the centrepiece of the universe.

The heliocentric theory (helios=Sun) was first advanced by Nicolaus Kopernik (1473-1543), a Polish astronomer, better known by his Latinised name *Copernicus*. In 1543 Copernicus published a book *De Revolutionibus Orbium Coelestium* in which he set out the theory that the Sun was the centre of the universe and that the Earth and other planets revolved round it. Wrote Copernicus: "In the middle of all dwells the Sun. [illegible] this most beautiful temple [illegible] torch in any other or better place [illegible] whence it can illuminate [illegible] [illegible]

SPINNING OUT THE SEASONS

Our Earth is a seasoned traveller. Autumn cools into winter and spring warms up to summer as we journey with the globe on its year-long circuit of the Sun. And it all happens because the whirling Earth doesn't stand up straight.

Imagine its orbit as the edge of an oval table, with the Sun as the centrepiece. Like a cockeyed top, the Earth spins around the table edge, leaning at an angle of 23½°. Without that tilt, we would have no seasons. Every day and every night would be 12 hours long, no matter where you lived or what month it was.

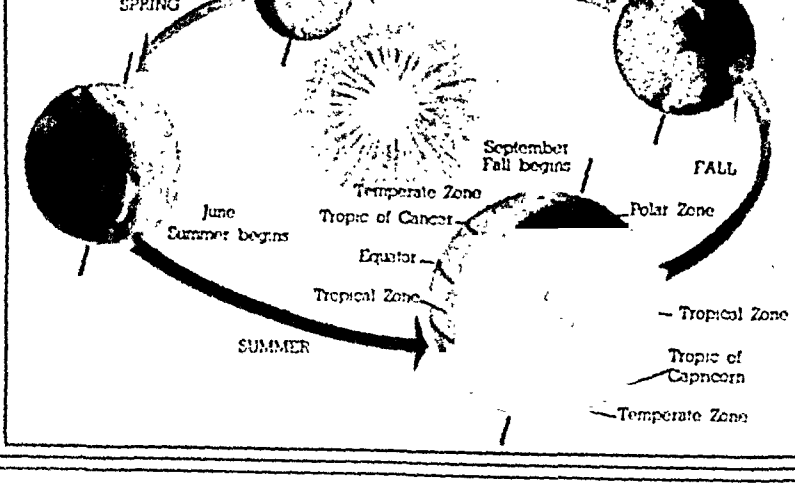
When a person in Kansas squints up at the Sun in June, he sees it passing nearly overhead, since the North Pole is then tilted toward the Sun. No wonder he mops his brow; the sun's rays are hitting Kansas almost straight-on. It makes little difference that the Earth is beginning to swing farther away from the sun in its oblong orbit. The Sun radiates energy, but not in the form of heat. sunlight only produces heat when it strikes something it can't go through, like a road or a roof or a sunbather's skin.

To see how this happens, go to a window and hold your hand in the sunlight coming through the glass. Feel the warmth? Now feel the glass. It's cold because the sunlight passes right through it.

Another reason summer is warmer is that the days are longer than the nights. The dark then covers more of the Southern Hemisphere than of the Northern. Direct sunlight, long days — that's summer!

Now it's December, and the North Pole is tilted away from the Sun. And so is Kansas. The Sun's rays now strike at an angle and much of the heat is lost. And night's black skullcap has shifted northward, giving the Sun less time to warm things up. Long nights, a cool Sun low in the southern sky — that's winter!

In Australia the seasons are just the opposite; folks there sweat while people in the Northern Hemisphere shiver. In the tropics, on a wide belt that straddles the Equator, the weather stays warm all year — and often gets very hot. But at the poles, the Sun's angle is always low — thus the ice caps.



:rse, others its mind, others again its ..."

:e all other astronomers of the day, :rnicus believed that the solar system was valent to the universe. This was a mistake h was corrected only in recent times. He also mistaken in assigning circular orbits ıe planets. This mistake was corrected by German astronomer Johannes Kepler 1-1630) in 1609. For the rest, the Coperni- theory was sound and unassailable.

evertheless, the theory faced stormy ther. For the better part of a century utation went on between the Copernicans the Ptolemians, with the Copernicans aining on the defensive. Even the Danish onomer Tycho Brahe (1546-1601), the st celebrated astronomer of the times, cted the heliocentric concept. It was left to Italian astronomer, Galileo Galilei (1564- 2) to save the Copernican theory from nction. Galileo fought a lifelong battle in ence of the Copernican theory. Before he d he had the satisfaction of knowing that tide had turned and that the Ptolemians re on retreat.

ir Issac Newton (1642-1726) dealt the last w at the geocentric theory. He formulated law of gravitation and correlated it with his s of motion. His book *Philosophiae Natur- is Principia Mathematica* (known shortly as *ncipia)* marks a turning point in the history astronomical thought.

Modern theories on the formation of the rth and other planets are of course based on : Copernican theory. In 1749, the French turalist Comte de Buffon argued that the anetary system originated as the result of a llision between the Sun and a comet that me out from the depths of space. In 1775 the :rman philosopher Immanuel Kant adv- ıced what has since been known as the :bular hypothesis. He suggested that the ırth and the other planets were condensed om a rotating nebula of gas centred in the ın (solar nebula). The French mathematician arquis de Laplace supported the nebular ypothesis in 1796. Around 1900 two Amer- an astronomers, T.C. Chamberlin and F.R. loulton, offered an altered version of Buffon's ıeory. They argued that a star (not a comet) assed by the Sun and drew out the material ıat later condensed into planets.

Neither Buffon's thesis nor that of Chamber-lin and Moulton could hold out for long. But Kant's hypothesis received further support. In 1943 the German scientist von Weizsacker came out with a restatement of the nebular hypothesis. He was supported by the American astronomer Kupier. They argued that the entire solar system originated from a massive wheeling cloud of gas and dust some 6 billion years ago. The central mass of this rotating disc of gas formed the Sun. Because of its intense pressure and temperature, the Sun gives out light, heat and other radiations through nuclear reaction. The clouds on the periphery of the central mass (Sun) condensed to form the planets and other celestial bodies of the solar system– all of which are held together by the gravitational pull of the Sun.

The age of the earth was a matter of speculation till very recent times. [illegible] played a very great part in [illegible]. Naturally, the [illegible] varied [illegible]. [illegible] an old [illegible] calendar put [illegible] the Earth at a mere 2000 [illegible] calculation [illegible] put it down at 2000 million [illegible]

Earth Data

Superficial area	196,950,000 sq.	miles
Land surface	57,510,000	"
Water surface	139,440,000	"
Equatorial circumference	24,902	miles
Polar circumference	24,860	"
Equatorial diameter	7926.7	"
Equatorial radius	3,963.34	"
Mean distance from the Sun	92,857,000*	"
Time of Rotation on its own axis	23 hrs. 56 min. 4.09 sec	
Period of Revolution round the Sun	365 days 5 hrs. 48 min. 45.51 sec.	
Inclination of the axis to the plane of the ecliptic	23°27'	

Speed of Rockets (that is, velocity required to counter earth's gravity and to rise up into the atmosphere)- A minimum of 8 km (5 miles) per second.

Escape Velocity (that is, speed necessary to break away from the earth into outer space)-11 km (7 miles) per second

* This is now known as Astronomical Unit AU

Irish bishop, James Ussher, set out to fix the exact age. He calculated on the basis of the Bible that the Earth was created on Sunday, the 23rd October, at 9 a m in the year 4004 B.C.

It was only about 200 years ago, that scientific enquiries were started by geologists. According to their deductions, based on the study of rocks, the age of the Earth is estimated to be around 4600 million (4.6 billion) years.

Our knowledge of the internal structure of the Earth is derived from studies of earthquakes. The shock waves sent out by an earthquake indicate the physical nature of the regions through which they pass. These studies show that the centre of the Earth is a solid core-the *Inner Core*. The density of this core is about 13 g to the cubic centimetre. The Inner Core is about 1300 km thick and is surrounded by an *Outer Core* of around 2080 km. The Outer Core appears to be molten.

The Outer Core is surrounded by the Mantle which has a thickness of around 2900 km. The Mantle is topped by the crust of the Earth, which varies widely in thickness–from 12 to 60 km At the centre or the Inner Core, that is at a depth of some 6370 km temperature
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The mantle is important in many ways It ecounts for nearly half the radius of the Earth (2900 km), 83 per cent of its volume and 67 *per cent of its mass* The dynamic processes which determine the movements of the crust plates are powered by the mantle

Starting at an average depth of from 45 to 56 km below the top surface of the Earth, the mantle continues to a depth of 2900 km where it joins the outer core. The mantle is a shell of red hot rock and separates the Earth's metallic and partly melted core (both the inner and the outer cores) from the cooler rocks of the Earth's crust. It is composed of silicate m als rich in magnesium and iron. The den the mantle increases with depth from 3.5 grams per cubic centimetre to arou grams, near the outer core.

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LITHOSPHERE

The lithosphere is the top crust of the earth on which our continents and ocean basins rest. It is thickest in the continental regions where it has an average thickness of 40 km and thinnest in the oceans where it may have a maximum thickness of 10 to 12 km. It constitutes about 1 per cent of the Earth's volume and 0 4 per cent of its mass.

Though the lithosphere technically includes both the land mass and the ocean flo often used to indicate only the land s Regarded thus, the lithosphere form 3/10 of the total surface of the Earth. T 7/10 is taken up by the oceans.

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Plate Tectonics

The discoveries of the sixties, supporting the theory of Continental Drift, have given birth to a new concept of geology– Plate tectonics. *Tectonics simply means the study of rock structures involved in earth movemnts. Plate tectonics deals with such structures as are in the form of plates. The concept has revolutionised the study of geology in the same way as the Copernican theory has revolutionised the science of astronomy. The Copernican theory entailed a radical change in our ideas of the Earth and the solar system. Plate tectonics has worked a similar revolution in our conception of the Earth itself. It has proved that the Earth is not static but dynamic, so dynamic that it can rightly be described as 'alive and kicking.'*

The theory of Continental Drift assumes that the continents plough through the oceans like massive ships. Plate Tectonics tells us that it is not only the continents that are in motion, but the oceans as well. This is so, because the top crust of the Earth is not (as we have thought) an unbroken shell of granite and basalt, but a mosaic of several rigid segments, called plates. These plates include not only the earth's solid upper crust, but also parts of the denser mantle below. They have an average thickness of 100 km (60 miles). They float on the plastic upper mantle of the Earth, called Asthenosphere, *and carry the continents and oceans on their backs like mammoth rafts.*

All these plates are in constant motion relative to one another. One source of confusion in distinguishing between continental drift and plate tectonics is the assumption that continents and plates are synonymous. They are not. Continents form only a part of the plates, the surrounding oceans form the rest of the plates. The continents alone do not drift or move. It is the plates containing both continents and oceans that move. So we now talk of plate movements *instead of* continental drift.

rocks. The rocks themselves were originally formed from the molten magma, which erupted from the interior of the earth. Powerful earth movements have heaved up some of the rocks to the top surface, where they are exposed to climatic influences. The process by which rocks are broken down into sand is known as 'weathering'. Many factors operate to weather down the rocks, of which the most important is 'weather' itself.

When rocks heated hot by the Sun are suddenly cooled by rain they crack. When the process goes on for thousands of years big rock formations crumble down as sand. Similarly frost can break down rocks. Water caught in the crevices of rocks turns to ice in winter conditions and expands. This pressure often cleaves rocks. These and other conditions have combined to produce the land formations that we see today.

The contours of the landscape are largely conditioned by the rocky substructure of the lithosphere. Geologically speaking, all materials that make up the crust of the Earth are rocks, whether they are big granite boulders, combustible coal, soft clay or loose fragments of gravel or sand. Rocks which form the substructure of the lithosphere may be broadly grouped into three classes- *1. Igneous rocks, 2 Sedimentary rocks,* and *3. Metamorphic rocks.*

Igneous rocks are formed out of the molten magma from the interior of the earth. Ninety-five per cent of the earth's crust is made up of these rocks. Three types of igneous rocks may be noticed here, *Granite, Basalt* and *Volcanic.* Granite is the major rock in continental formations. Basalt largely occurs in ocean beds Volcanic rocks, as the name implies, are formed from the molten lava ejected by volcanoes.

Sedimentary rocks are so called because they are formed from the sediments deposited in the ocean beds. They comprise only 5 per cent of the Earth's crust but cover about 75 per cent of the land surface. Sedimentary rocks though not important structurally are important economically. It is from these rocks that we get our coal, oil and some valuable minerals. Sedimentary rocks are mainly made up of the weathered remains of igneous rocks but they also contain much organic matter formed from the remains of microscopic marine organisms, dead wood and other

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When rocks heated hot by the Sun are suddenly cooled by rain they crack. When the process goes on for thousands of years big rock formations crumble down as sand. Similarly frost can break down rocks. Water caught in the crevices of rocks turns to ice in winter conditions and expands. This pressure often cleaves rocks. These and other conditions have combined to produce the land formations that we see today.

The contours of the landscape are largely conditioned by the rocky substructure of the lithosphere. Geologically speaking, all materials that make up the crust of the Earth are rocks, whether they are big granite boulders, combustible coal, soft clay or loose fragments of gravel or sand. Rocks which form the substructure of the lithosphere may be broadly grouped into three classes- *1. Igneous rocks, 2. Sedimentary rocks,* and *3. Metamorphic rocks.*

Igneous rocks are formed out of the molten magma from the interior of the earth. Ninety-five per cent of the earth's crust is made up of these rocks. Three types of igneous rocks may be noticed here, *Granite, Basalt* and *Volcanic.* Granite is the major rock in continental formations. Basalt largely occurs in ocean beds. Volcanic rocks, as the name implies, are formed from the molten lava ejected by volcanoes.

Sedimentary rocks are so called because they are formed from the sediments deposited in the ocean beds. They comprise only 5 per cent of the Earth's crust but cover about 75 per cent of the land surface. Sedimentary rocks though not important structurally are important economically. It is from these rocks that we get our coal, oil and some valuable minerals. Sedimentary rocks are mainly made up of the weathered remains of igneous rocks but they also contain much organic matter formed from the remains of microscopic marine organisms, dead wood and other

Continents

Name	Area sq. miles	Percentage of Earth's area	Population Estimate	Highest Point in feet		Lowest Point in feet	
Asia	16088000	29.5	2316312000	Everest	29028	Dead Sea	1
Africa	11506000	20.0	401000000	Kilimanjaro	19340	Lake Assai	
N America	9390000	16.3	342700000	McKinley	20320	Death Valley	
S. America	6795000	11.8	219000000	Aconcagua	22834	Valdes Penin	
Europe	3745000	6.5	660313000	Elbrus	18510	Caspian Sea	
Australia†	2968000	5.2	13800000	Kosciusko	7310	Lake Eyre	
Antarctica	5500000	9.6	-	Vinson Massif	16860		

† Australia with New Zealand, Tasmania, New Guinea and the Pacific islands, (Micronesian, Melanesian and Polynesian Islar called *Australasia* by some geographers while some others call it Oceania

vegetable matter. Sedimentary rocks are formed in horizontal layers called strata and take millions of years to harden into rocks. Once formed, these rocks are often rolled up or deformed and shifted about by earth movements and are sometimes located in the most unlikely places, the top of the Himalayas, for instance.

Metamorphic rocks are rocks transformed by the action of intense heat or great pressure or chemical activity on rock formations *in situ* Both igneous and sedimentary rocks are liable to be metamorphosed Metamorphosis is often associated with volcanic activity or the extrusion of molten or hot gases into pre-existing rock formations Marble, for example, is formed by the action of intense heat on limestone Slate is formed by the compression of shale and mudstones

The Lithosphere is divided into twelve climatic regions

We know that the face of the Earth, that is, its visible surface has undergone radical changes in the past. Geologists explain these cha as the consequence of the cooling and traction of the Earth, through thousand years. This explanation seemed quite uns factory to a German scientist, Alfred Weg (1880-1930). In 1915, Wegener publish book *The Origin of Continents and Ocea* which he advanced a new theory, the theo *Continental Drift*

This theory claimed that the changes i appearance of the Earth were, in the main to the shifting of continents. Weg grounded his theory primarily on two pr es First, that the geological formation fossil remains of the present far away c nents showed striking similarities. Sec that some of the continents showed nishingly complementary coastlines. The coast of South America, for example, ma the west coast of Africa so finely that would fit together exactly, if they brought together.

MOUNTAINS & DESERTS

Mountains are conventionally divided into four types, according to their mode of origin Fold mountains, Block mountains, Volcanic mountains and Residual mountains

Fold Mountains arise because the rocks in them have been buckled and crumpled by pressure Just as a tablecloth, when pushed along a table, wrinkles up into folds, the rocks of the Earth's crust react to lateral pressure to form folds If the pressure is very great, the folds are squeezed tightly into pleats Further pressure will send the pleats rolling over another. As the pleats roll up, high eleva are formed Only massive pressures like resulting from colliding plates can fold mould rocks into mountains In fact, it out that all our big mountain systems been formed by colliding plates The *A layas* rose over such a colliding zone. S the *Andes* (S America), the *Rockies* (N ica) and the *Alps* (Europe) The Himalaya Andes, the Rockies and the Alps are

young mountains and are classed as *new fold mountains*. They have come into being, after the continental drift started with the break up of the super continent, Pangaea.

What are called *old fold mountains* must have been formed in the pre-drift era long before the continental masses came together to form Pangaea. Among the old fold mountains are the *Pennines* of Europe, the *Appalachians* of America and the *Aravallis* of India. These mountains have weathered down to stumps long ago.

Block Mountains come into being as a result of vertical earth movements along cracks or faults. Such movements are also caused by the pressure generated by plates. When such vertical earth movements leave a block of high elevation standing between two areas of low elevation, the high land area forms a block mountain. Block mountains are usually steep-sided. The *Vosges* in France and the *Black Forest* mountains in W. Germany are mountains of this type.

Volcanic Mountains form as a result of volcanic eruptions. When a volcano erupts, the materials that are ejected fall around a hole or crater and build up a mountain that is roughly conical in shape and has a crater at the top. *Fujiyama* in Japan, *Vesuvius* in Italy and the *Chimborazo* and *Cotopaxi* in the Andes (S. America) are examples of such mountains.

Residual Mountains: Some mountains are so deeply dissected and reduced by weathering and river action that they stand out as skeletons. The *Catskill* mountains of New York are typical of this class.

Principal Peaks

Name	Country	Height (ft)
Mt. Everest	Nepal-Tibet	29,028
Mt.Godwin	India	28,250
Kanchenjunga	Nepal-India	28,280
Dhaulagiri	Nepal	26,810
Nanga Parbat	India	26,660
Annapurna	Nepal	26,504
Nanda Devi	India	25,645
Mt. Kamet	India	25,447
Gurla Mandhata	Tibet	25,355
Tirich Mir	Pakistan	25,263
Minya Konka	China	24,900
Mt. Communism	USSR	24,590
Pobeda Peak	USSR	24,406
Muztagh Ata	China	24,388
Chomo Lhari	India-Tibet	23,297
Muztagh	China	23,890
Aconcagua	Argentina	22,834
Ojos del Salado	Argentina-Chile	22,532
Cerro Mercedario	Argentina	22,221
Huascaran	Peru	22,205
Llullaillaco Volcano	Chile	22,057
Tupungato	Chile-Argentina	21,489
Sajama Volcano	Boliva	21,391
Illampu	Bolivia	21,276
Vilcanota	Peru	20,664
Chimborazo	Eucador	20,561
Mt McKinley	Alaska	20,320

Great Deserts

Name	Country	Area in sq. miles
Sahara	N.Africa	3,500,000
Libyan	N.Africa	650,000
Australian	Australia	600,000
Great Victoria	Australia	125,000
Syrian	Arabia	125,000
Arabian	Arabia	50,000
Gobi	Mongolia	400,000
Rub'al Khali	Arabia	250,000
Kalahari	Botswana	200,000
Great Sandy	Australia	160,000
Takla Makan	China	125,000
Arunta	Australia	120,000
Kara Kum	S.W.Turkistan	105,000
Nubian	N.Africa	100,000
Thar	N.W.India	100,000
Kizil Kum	Central Turkistan	90,000

ISLANDS

Islands take a large mass of land, the biggest 16 of them accounting for as much as 22 million sq miles–greater than the area of the continent of Europe. The smaller islands count by the thousands. Islands are broadly divided into three types, continental, oceanic and coral.

Continental Islands are those islands that rise from the continental shelf, like the British Isles or Newfoundland. These islands have the same geological structure as the continents to which they are related. *Oceanic Islands* are those that rise from the bosom of the oceans Their gelological structure will have no relation to that of the nearest shores They are very often the tops of submarine mountains or submarine volcanoes *Ascension* and *Tristan da Cunha,* for example, rise from the Central Atlantic ridge (mountain) while *St Helena* and *Teneriffe* are islands formed by submarine volcanoes

Coral Islands are the work of minute sea organisms called coral polyps They congregate in large colonies When the organisms die, their skeletons, which are made of a substance resembling limestone, form big clusters, some of which rise above the water

Coral organisms are of many types and coral formations assume many strange shapes. Some colonies spread out like fans, others grow into umbrella-like discs or plates, while many develop spiky horns Their colours are also as varied as their shapes Most corals are of different pastel hues, such as lavender, soft blue, green or violet. Coral retains its fascinating colours when the colony is alive When the colony dies, the colours fade gradually, and totally disappear where the coral is exposed to the heat of the Sun

The gem varieties of coral which have been found in red, pink, gold or black colours do not bleach or change colour when exposed to the sun

One type of coral excels in building reefs Reef-building corals thrive in warm tropical seas They usually start building reefs, along the edges of islands Such reefs are called *fringing reefs* Many tropical islands have such fringes These protect the islands from the ravages of the sea Sometimes an island, with a coral fringe begins to sink. Its shoreline g down first, while coral building contin upwards. The sea invades the sink shoreline and separates the coral reef from rest of the island. Such a reef is called a *bar reef.* The *Great Barrier Reef,* which extends more than 1200 miles parallel with the coas Queensland, Australia, appears to have co into existence in this manner. This is biggest coral reef known and consists alm entirely of the limestone skeletons of cou less coral colonies that had existed throu thousands of years.

World's Largest Islands

Name	Area sq miles	Loca
Greenland	840000	Arctic Oc
New Guinea	317000	West Pa
Borneo	287400	Indian Oc
Malagasy Rep.	227800	Indian Oc
Baffin Island	183810	Arctic Oc
Sumatra	182860	Indian Oc
Honshu	88019	N.W. Pa
Great Britain	84186	North Atl
Ellesmere Island	82119	Arctic Oc
Victoria Island	81930	Arctic Oc
Celebes	72987	Indian Oc
South Island, N.Z.	58093	S.W. Pa
Java	48763	Indian Oc
Luzon	46636	West Pa
North Island, N.Z.	44281	S.W. Pa
Newfoundland	42734	North Atl
Cuba	41634	Caribbean
Iceland	39698	North Atl
Mindanao	39191	West Pa
Ireland (N Ireland & Rep of Ireland)	31839	North Atl
Hokkaido	30007	N.W. Pa
Hispaniola (Dom Rep & Haiti)	29530	Caribbean
Sakhalin	28597	N.W.Pa
Tasmania	26215	S.W.P
Sri Lanka	25332	Indian O

Low circular coral islands, each wit central lagoon of shallow water, are ca *atolls* Atolls probably represent the last s in the evolution of a coral island. When

is completely frozen in winter and covered with drifting ice for the rest of the year. However, its separate existence and its area of over 5 million sq. miles entitle it to be called an ocean.

Though we have only four oceans there are seven seas. The proverbial seven seas are made up by dividing the first three oceans into north and south along the Equator and adding Arctic to them, thus we have North Pacific, South Pacific, North Atlantic, South Atlantic, North Indian, South Indian and Arctic Seas.

The following table shows the areas of the oceans, with their seas and other inlets detached.

Oceans

Name	Area (sq miles)
Pacific	63,800,000
Atlantic	31,800,000
Indian	28,400
Arctic	5,400

Principal Seas

South China Sea ..	3,144
Caribbean Sea ..	1,063
Mediterranean Sea ..	966
Bering Sea ..	875
Gulf of Mexico ..	595
Sea of Okhotsk ..	589
East China Sea ..	482
Hudson Bay ..	475
Sea of Japan ..	389
Andaman Sea ..	308
North Sea ..	222
Black Sea ..	178
Red Sea ..	169
Baltic Sea ..	163
Persian Gulf ..	92
Gulf of St. Lawrence ..	91

RIVERS, LAKES & FALLS

The two longest rivers in the world are the azon (Amazonas) flowing into the South ntic and the Nile (Bahr-el-Nil) flowing into Mediterranean. Which is the longer is re a matter of definition than simple easurement.

The length of the Amazon as measured in 1969 is 4007 miles (6448 km). A subsequent calculation has placed it at 4195 miles (6750 km). The length of the Nile as measured by M. Devroey of Belgium is 4145 miles (6670 km). If we take the lower figure for Amazon (4007 miles) the Nile leads by 38 miles. If the greater length is considered (4195 miles) the Amazon leads the Nile by 50 miles.

However, in judging rivers, the primary criteria are the amount of water they carry and the extent of the area they serve whether for navigation or cultivation. On these counts the Nile loses to the Amazon by wide margins. The Amazon has the longest stretch of navigable water, 2300 miles. It has the greatest flow of all rivers in the world with an average 4,200,000 cubic feet of water per second (cusecs) rising up to 7,000,000 cusecs in flood. It has the largest river basin in the world, 2,720,000 sq miles. It has some 15,000 tributaries, the longest tributary Madeira having a length of 2000 miles.

Longest Rivers

Name	Country/ Continent	Le in
Amazon	S. America	4007
Nile	Africa	
Mississippi-Missouri	USA	
Yangtze Kiang	China	
Ob-Irtysh	USSR	
Congo	Africa	
Amur	Asia	
Hwang	China	
Lena	USSR	
Mackenzie	Canada	
Mekong	Asia	
Niger	Africa	
Parana	S. America	
Yenisey	USSR	
Murray-Darling	Australia	
Volga	USSR	
Maderia	S America	
Yukon	Alaska-Canada	
St. Lawrence	Canada-USA	
Rio Grande	USA-Mexico	
Purus	S. America	

Sao Francisco	S. America	1800
Salween	Asia	1750
Danube	Europe	1725
Euphrates	Asia	1700
Indus	Asia	1700
Tocantins	S. America	1700
Brahmaputra	Asia	1680
Syr-Darya	USSR	1680
Si	China	1650
Ganga	Inndia	1650
Orinoco	S. America	1600
Nelson	Canada	1600
Zambezi	Africa	1600
Ural	USSR	1574
Amu-Dar'ya	USSR	1550
Olenek	USSR	1500
Paraguay	S. America	1500
Japura	S. America	1500
Arkansas	USA	1450
Colorado	USA-Mexico	1450
Dnieper	USSR	1418
Rio Negro	S. America	1400
Orange	Africa	1350
Kolyma	USSR	1335
Irrawaddy	Burma	1325
Ohio	USA	1306
Kama	USSR	1262
Don	USSR	1222
Columbia	USA-Canada	1214
Saskatchewan	Canada	1205
Peace	Canada	1195
Darling	Australia	1160
Angara	USSR	1157
Tigris	Asia	1150
Sungari	Asia	1130
Pechora	USSR	1111
Snake	USA	1038
Red	USA	1018
Churchill	Canada	1000
Pilcomayo	S. America	1000
Uruguay	S. America	1000
Magdalena	Colombia	1000

Famous Waterfalls

Name	Country	Height (ft.)
By Height		
Angel	Venezuela	2648
Kukenaam	Venezuela	2000
Ribbon	USA	1612
King George VI	Guyana	1600
Upper Yosemite	USA	1430
Gavarnie	France	1385
Tugela	S. Africa	1350
Wollomombi	Australia	1100
Takakkaw	Canada	1000

By volume of water

		Average annual flow (cu. ft./ sec.)
Guaria	Brazil	470000
Khon	Indo-China	410000
Niagara	Canada	212200
Paulo Afonso	Brazil	100000
Urubupunga	Brazil	97000
Iguazu	Argentina	61660
Patos-Maribondo	Brazil	53000
Victoria	Zimbabwe	38430
Grand	Labrador	35000
Kaieteur	Guyana	23400

ATMOSPHERE

The atmosphere is an insulating blanket protecting the Earth. It softens the intense light and heat of the Sun. Its Ozonic (O^3) layer absorbs most of the very deleterious ultra-violet rays from the Sun and thus protects living organisms from extinction.

The atmosphere is bound to the Earth by gravity. Satellites like the Moon, which have very low gravitational power, cannot and do not hold an atmosphere.

Air pressure simply means the weight of the entire air column over a given point. Air, of course, has very little weight. A cubic foot of air weighs around an ounce and a quarter. At the sea level, the air pressure is 14.7 pounds to the sq. inch. This pressure is usually described as *one atmosphere.*

The atmosphere is composed of various gases and water vapour, and in its uppermost reaches, it is charged with subatomic particles. Up to about 30 miles from the Earth, the atmosphere consists of about 78 per cent nitrogen, 21 per cent oxygen (O_2) and minor percentages of argon, carbon dioxide, neon, helium and methane, in that order. Above 30 miles, the atmosphere is made up of atomic oxygen (O_1), ozone, (O_3), helium and hydrogen.

What is Lightning?

What is lightning, how to protect against it and how to predict when and where it is most likely to strike? Scientists in the U.S. are trying to find the answers by various daring tests

One is by sending aloft rockets at the thunder clouds to extract powerful bolts of electricity. One-meter (3 foot) rockets are being fired into the clouds. These rockets will have 2100ft wire trailing. Each rocket, like a key or lightning rod, should attract the strong negative electric charge in the cloud and thus trigger a luminous crackling surge of electricity down the wire to the ground — a lightning stroke.

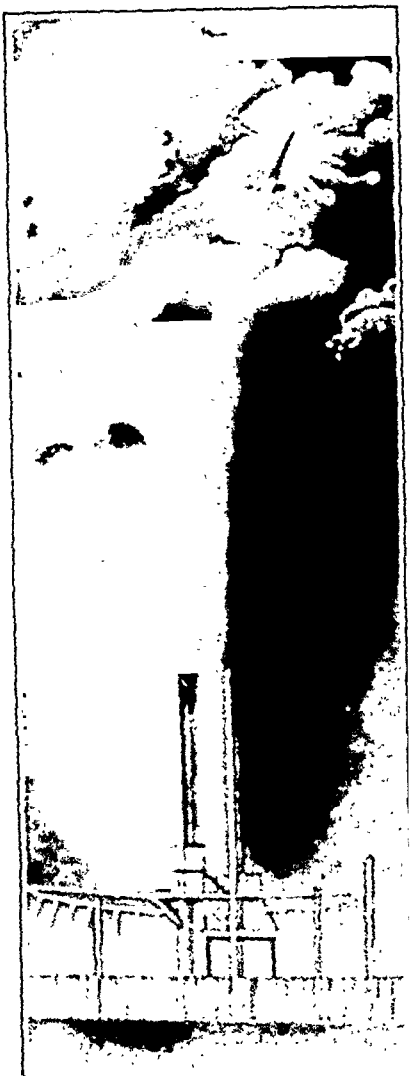
An array of cameras, radio receivers and sensors will monitor the rocket-triggered lightning to give scientists what they hope will be a better understanding of the nature of lightning, how to protect against it and how to predict when and where it is most likely to strike.

Physicists who have made a career of studying lightning concede there is still much to learn. Lightning may well have sparked the chemical evolution of life on earth. It probably brought fire to early humans. It kills or injures many people each year and causes forest fires and other extensive property damage. Yet, for all the theories, the exact process of generating lightning remains a mystery.

In the U.S., NASA is spearheading the research. They were prompted by the Atlas-Centaur accident in which the meteorologists misinterpreted the lightning hazard information.

The unmanned rocket took off and triggered a lightning bolt, which scrambled the vehicle's electronics. The rocket and its communications satellite, a $160 million package, tumbling out of control, were destroyed on a command from the ground.

William Jaffers, the NASA supervisor of the research program, said "We have a forecast problem. We need a better warning system that tells us lightning is close to us."



The presence of atomic hydrogen in the upper atmosphere has recently been confirmed by a camera left on the surface of the Moon by the Apollo-16 mission. The camera has revealed a cloud of atomic hydrogen extending outwards from the Earth to about 64000 km.

Water vapour is present in the lower atmosphere, say up to 7 miles, in concentrations ranging from 0.01 per cent to 1 per cent. Although the amount of water vapour in the atmosphere is very small, its importance is very great, for without water in the atmosphere, there would be no weather on Earth. Water enters the atmosphere by evaporation from the hydrosphere (and also by transpiration of plants) and leaves the atmosphere by precipitation as snow or rain. It is a never ending two-way traffic.

Clouds are made of water vapour that has evaporated from the Earth. They are very tiny droplets of microscopic size and are too light to fall down as rain. So they ride on the air waves until they condense and then fall down as rain. Clouds are classified according to their shapes. *Cirrus* clouds are shaped like ringlets and go up to 40,000 ft. in height. *Cumulus* clouds are those that rise in heaps, and *Stratus* are those that are scattered about. *Nimbus* clouds are the menacing rainstorm clouds The various types are often found mixed together like the *cirro-cumulus, cirro-stratus, cumulo-nimbus* etc.

It is the surge of electricity from the Earth that makes lightning the awesome phenomenon that it is. The lead, however, is taken by the clouds which send down a rather weak stroke called the leader stroke. The Earth responds by sending up a much more massive stroke to the clouds. The whole thing takes less than a second, so that we see the leader stroke and the counter stroke as one flash of lightning.

Dry air is highly resistant to electricity. When the air is loaded with water vapour it becomes an easier conductor. Nevertheless, much power is required for the stroke to rip through the air. This excessive discharge of electricity heats up the air around the passage (of the stroke) to incandescent temperatures, say 10,000°C. It is this glowing air that we see as lightning flash. The heat also causes a sudden expansion of air which, as the heat disappears, contracts quickly again. This sudden expansion and contraction produce the familiar thunder clap. Although both occur at the same time, we see the flash first because light travels much faster than sound.

The character and composition of the atmosphere change as we go higher and higher. Altitudinally arranged, there are 4 important spheres, with 3 pauses. They are: 1. Troposphere with Tropopause, 2. Stratosphere with Stratopause, 3. Mesosphere with Mesopause and 4. Ionosphere or Thermosphere.

The *Magnetosphere* which lies beyond the Exosphere along with *Magnetopause* which marks the outer boundary of the Magnetosphere, does not form part of the atmosphere. It represents the outermost limits of the Earth.

Troposphere is the lowest gaseous layer of the atmosphere and extends to a height of about 7 miles from the Earth The troposphere contains nearly two-thirds of the total mass of the atmosphere.

Tropopause is the layer that joins troposphere, the lowest layer, with the upper layer Stratosphere. The height of tropopause varies with latitude.

Stratosphere is the region above tropopause It is about 20 miles thick. It is free from the violent weather changes which occur below. So, it is preferred by our jet liners. Jet liners, however, face another meance in stratosphere, namely Jet Streams. Jet Streams are high velocity air currents.

BIOSPHERE

The idea of a biosphere (sphere of life) was first suggested by the Austrian geologist Eduard Suess nearly a century ago. It was at that time an insignificant concept. Today, however, the biosphere has become the most important problem faced by man.

The distinguishing feature of the biosphere is that it supports life. It is estimated that the biosphere contains more than three hundred and fifty thousand species of plants in algae, fungi, mosses and higher plants, and eleven mill

ranging from uni-cellular protozoa to man. The biosphere supplies the essential requisites of life for all these species, namely light, heat, water, food and living space or habitats

The biosphere, or the *eco-system*, as it is generally called, is an evolutionary system. It represents a stable equilibrium of various physical and biological factors which have been operating in the past. The organic continuity of the system rests on a delicate net-work of interdependent relationships The air, the water, man and the animals, plants and planktons, the soil and bacteria are all invisibly interlinked in a life-sustaining system we call the environment.

The eco system or the enviornment has a *rhythm* and movement of its own which depend upon a whole set of delicately balanced cycles. All living organisms-microbes, plants, animals, man – have survived by adjusting themselves to the environment and attuning their lives to its rhythm It is, therefore, absolutely necessary that these cycles should be maintained unimpaired

What keeps the biosphere going is solar energy which comprises 99 98 per cent of the total energy supply of the biosphere Day in and day out the Sun pours forth its energy in the form of sunlight Light consists of bundles of energy called *quanta* The energy content of a quantum of light is proportional to its frequency The shorter the wavelength, the higher the frequency and the greater the energy content

The process by which solar energy is transferred to molecules is called photochemical process In this process sunlight excites the electrons in a molecule and kicks them out. This releases electrons to pair with other electrons from a neighbouring atom or molecule and thus forms electron pair bonds These new bonds create new molecules

The most important photochemical activity in the biosphere is *photosynthesis* in plants Photosynthesis is a complicated process The light absorbed by chlorophyll molecules and by other pigments in plants is transferred to electrons in such a way as to create strong oxidants, that is, molecules that readily remove electrons from other molecules (oxidise them), or reductants, that is, molecules that readily supply electrons to other molecules (reduce them)

It is these oxidants and reductants that ass plants in producing carbohydrates and oxyg from molecules of carbon dioxide and wat Plants respire (give out) oxygen but ret carbohydrates which are converted to ener and stored in the form of chemical bon notably those of adenosine triphosphate (AT which is the basic energy currency of all livi cells. High energy phosphate bonds of A contain 12000 calories and release 7500 cal ies when broken.

This energy is carried up the food chain herbivores feeding on plants and carnivo feeding on herbivores. Omnivores like m draw their energy both from plant and anir sources. Much of the energy drawn by pla and animals (including man) is consumed a spent in maintaining the process of life.

The energy that is not expended in course of life is stored in dead mat Decomposing bacteria break up the de matter and convert it into *humus* or *orga sediments*, releasing carbon dioxide, wa *and heat into the biosphere. Thus the b* ingredients of life are returned to the soil. T plants draw their nutrients from the soil keep the cycle going.

Heat Cycle. Heat is one of the pri requisites of life. This is supplied by so radiation. It is calculated that the solar h reaching the Earth's orbit (just above atmosphere) amounts to about 2 calories sq. centimetre per minute. But the Earth only less than half the radiation reaching *top of the atmosphere.*

About 2 per cent is absorbed by the oz layer in the atmosphere. Atmospheric wa vapour, carbon dioxide and dust parti absorb around 18 per cent. The clouds ref back into space some 23 per cent. About per cent is scattered by the atmospheric d The Earth receives only the balance of 38 cent. But the story does not end there. Ou the 38 per cent solar radiation received, Earth re-radiates about 7 per cent by l wave radiation, thus reducing the stock terrestrial energy to 31 per cent.

At the same time, out of the 22 per scattered by the atmosphere, 16 per ultimately reaches the Earth as *diffuse ra tion*, the rest 6 per cent being irretrievably in space. Thus, on the whole, the E receives about 47 per cent of the solar ene reaching the atmosphere Meanwhile,

atmosphere acting as an intermediary between the Sun and the surface of Earth, retains about 5 per cent of the energy as sensible heat and about 24 per cent as latent heat in water vapour.

It is essential that the absorption and re-radiation of heat should ultimately balance. Otherwise the Earth would experience a net increase in heat or a net decrease according as a surplus or deficit of heat results from radiation. The balance between absorption and re-radiation is mainly regulated by water vapour in the atmosphere.

There is only a very little amount of water in the atmosphere, about 0.001 per cent. This insignificant amount of atmospheric water exercises an influence on the climate of the Earth, out of all proportion to its total mass. Besides keeping the balance between the absorption and radiation of heat, it controls the water cycle and determines our climatic conditions.

Carbon Cycle. The biosphere contains a complex mixture of carbon compounds, in a continuous state of creation, transformation and decomposition. Practically all organic matter originates in the process of photosynthesis. The plants use the radiant energy of the sun to convert carbon dioxide and water into carbohydrates by splitting water to derive hydrogen, and by drawing in carbon dioxide from the air. In the process the plants release free oxygen (O_2) into the atmosphere.

While plants absorb carbon dioxide during photosynthesis, all living organisms respire and release carbon dioxide and decomposing bacteria do the same in regard to dead matter. But while respiration and decomposition go on all the time, photosynthesis takes place only during daytime. During daytime, carbon dioxide in the atmosphere comes down from an average of 320 parts per million to around 305 parts but at night it increases, going up to as much as 400 parts per million, near the ground level.

Apart from the daily production and consumption of carbon (in the form of carbon dioxide), the Earth has a vast stock of carbon in permanent form. This stock consists of inorganic deposits (mainly carbonates like calcium carbonate etc.) and organic fossil deposits (chiefly coal, shale and oil). When we burn fossil fuels, we are merely adding more carbon dioxide to the atmosphere which has an excess supply already.

Oxygen Cycle. Oxygen not only supports life but also plays a fundamental role as a building block of practically all vital molecules accounting for about a fourth of all the atoms in living matter.

The most recent factor affecting the oxygen cycle of the biosphere and the oxygen budget of the Earth is man himself. He inhales oxygen and exhales carbon dioxide, thus reducing the stock of oxygen and increasing the supply of carbon dioxide. He goes further and burns fossil fuels, depleting the oxygen supply still further. He reduces photosynthetic activity, by cutting down forests and replacing them with cities.

Some astronomers think that the original supply of oxygen in the atmosphere came from the ultraviolet rays of the Sun which broke up the water molecules in the upper atmosphere into hydrogen and oxygen. Whatever may be the initial source of the oxygen in the atmosphere, what is important is that the plants are now augmenting the oxygen supply by photosynthesis. They are not only augmenting our oxygen supply but also reducing the total supply of carbon dioxide which is increasing to alarming dimensions.

Nitrogen Cycle. Nitrogen as it is obtained in the atmosphere cannot be used by the higher organisms. It has to be "fixed", that is, incorporated into a chemical compound. Nitrogen, in other words, has to be converted into *ammonia* or *amino acids*, so as to be of use to plants and animals.

Fixation of atmospheric nitrogen on land is carried out by organisms called diazotrophs who possess the genetic code for the synthesis of enzyme nitrogenase which catalyses nitrogen fixation. These organisms fall into two broad classes – symbiotic and non symbiotic. Symbiotic diazotrophs operate in association with some species of plants like legumes. They contribute the lion's share (88%) of nitrogen fixation on land. Non symbiotic agents who contribute the rest (12%) include blue green algae, aerobic (those requiring oxygen) bacteria and anaerobic (those who do not require oxygen) bacteria.

The total annual nitrogen required by the biosphere is estimated to be 200 million metric tonnes (mmt). Of these the diazotrophs account for only 140 mmt. Non biological agents like lightning or fire contribute around

not stop them. Look at the debris which our great civilizations have left behind them.

Ancient Sumeria—modern Iraq—was the granary of the *great Babylonian Empire*. The Sumerians harvested two crops and grazed sheep between the crops. Today less than 20 per cent of the land in Iraq is cultivated. "The landscape is dotted with mounds representing forgotten towns, the ancient irrigation works are filled with silt—the end product of soil erosion—and the ancient seaport of Urs is now 150 miles from the sea with its buildings buried under as much as 35 feet of silt".

Apart from erosion there is another factor that may convert good land into barren tracts This is salinity. Salinity appears where the groundwater table is lowered owing to the excessive consumption of groundwater resources. All over the world there are large tracts of land blighted by salinity—in Mexico and several other parts of America, in Tanzania and many other parts of Africa, in India, China and South East Asia. In spite of this bitter experience, the reckless tapping of underground water goes on merrily all over the world. Peter White writing on Greece in the *National Geographic* says, "Driving eastward in Macedonia, I get more intimations of new-found prosperity .Around Pella so many wells have been dug that the fountain of Alexander the Great has dried up".

We have through the centuries created vast deserts of fertile lands. But we do not yet know how to make the deserts bloom. Despite the claims of Israel, it is still a far-off dream. All our natural resources are going the same way We are consuming our minerals with an abandon that is hardly credible.

Since the Industrial Revolution our exploitation of natural power resources, coal and oil, has assumed alarming proportions. The Industrial Revolution itself was powered by coal Then came oil. Both threaten to give out, oil sooner than coal. Now that the OPE countries are holding the rest of the world to ransom for oil, we have begun to think of alternate sources of power that will not run out on us like coal and oil. This is the only silver lining on the overcast power front.

What we destory, we can't replace, nor can nature—not at this speed. It has taken millions of years for nature to stock up our present supply of minerals and fossil fuels but it will take us only a few centuries to run through them. As pillagers and predators, we surp all other species just as we do as thinkers creators. Only our thinking and creative ab ties are poor compared to our capacity. unthinking destruction.

No bird fouls its own nest. But the dou wise man (homo-sapiens) excels in this ob xious practice. It has been estimated that Britain the average person throws out abo 1.5 lb of garbage every day. In the US wastes dumped into the biosphere are mu greater—more than 4.5 lb per person per d To these familiar wastes are added wh heaps of industrial by-products, which neit the producer nor the consumer wants.

The advance of technology in recent ye has been dubbed the *Technological Revo tion*. This revolution, like all revolutions, backfired. While at one end it has hastened consumption of scarce materials, it has at other end thrown up a lot of unwanted wast These wastes are piling up and have alrea become unmanageable. Some of these was like synthetic plastics are not 'bio-degradabl Therefore they may persist for years as abidi threats to the eco-system.

But worst of all are the pollutants which sophisticated technology has been spewing around us. Careful studies have shown that pollution can damage vegetable crops and general affect plant growth. This is reflected the low nutrient quality of the plant produ and consequent ill effects on the health of t animals and people who depend upon the crops. Here again, we have a remarkab *amplification*. But far more important a effects that arise secondarily.

Effluents are wastes containing assimilab nitrogen and phosphates which our factori are discharging into surface waters, like rive and lakes. They enrich the water leading to t overgrowth of algae and similar organisms the detriment of other organisms and finally the extinction of all. "As large a body of wat as Lake Erie", says Commoner, "has alrea been overwhelmed by pollutants and has effect died...Sewage and industrial wastes an run-off from heavily fertilised farmlands hav loaded the waters of the lake with so muc excess phosphate and nitrate as to jar on th biology of the lake permanently out of b lance. The fish are all but gone".

The widespread use of combustible fue bodes ill for all species of animals in two way

average mass from one population to another".

The sapiens complex as it emerged showed four distinctive features: 1. a more efficient brain, 2. true language, 3. a flat face, and 4. exploitation of the kinds of articulatory motions that are now universal.

The new complex emerged within the framework of the erectus complex and did not undo any of its advantageous features. But it was a new key complex and gave rise to a new adaptive radiation, the second phase of human radiation. The sapiens complex spread just as the erectus complex did—by migration and gene flow.

The tempo, however, was almost unbelievable. The complex bestowed upon those who attained it an unprecedented capacity to cooperate, to move, to improve technology, to adapt and to absorb or eliminate less gifted competitors.

By about 40,000 years ago, there was no surviving group of hominids anywhere (with the possible exception of the *Neanderthals*) who had not absorbed the improved techniques. The Neanderthals persisted in Europe for many years after the sapiens complex became established. This tells us that the sapiens complex did not arise in Europe. But neither do we know where the sapiens complex originated. The Neanderthals lacked the flat baby face that had appeared elsewhere (among the sapiens) and their brains averaged somewhat larger than our own today or that of the Old World contemporaries of the Neanderthals.

GENES

Gregor Johann Mendel in 1885 showed that certain hereditary factors operate in all biological species. The Danish biologist Wilhelm Johannsen called these factors Genes. The name stuck. It is now known that the genes not only transmit hereditary traits but also mastermind the entire process of life.

The genes are located in the chromosomes which are themselves situated in the nucleus of the cell. The genes, the chromosomes and the nucleus together constitute – to use a famous phrase of Churchill's – "a riddle wrapped in a mystery inside an enigma" The genes form the riddle, the chromosomes represent the mystery and the nucleus the enigma.

Much of the mystery surrounding the genes was cleared up with the discovery of the structure of the DNA (Deoxyribo Nucleic Acid) announced by J. D. Watson and Francis Crick in April 1953. In structure the DNA resembles a long rope ladder twisted around like a corkscrew. If we straighten the ladder, we shall see that the two sides of the ladder are long chains of two substances – sugars and phosphates – in repeated sequences. These form the backbone of the DNA. Their structure never varies.

The secret of the DNA lies in the rungs that connect the two sides of the ladder. These rungs form two parts or two half-rungs, each half being attached to one side of the ladder. These half-rungs can be one of four types of little molecules: *Adenine (A), Cytosine (C), Thymine (T) and Guanin (G)*. Each of these half-rungs together with the attached segment of the ladder is known as a *nucleotide*. A half-rung on one side will only join with a specified partner on the other side. This pre-determined arrangement for specific joiners suggest that these little molecules form the letters of a fixed code or the words of a new language. Indeed, it has turned out to be this is exactly what they are.

An *A* will form a rung only with a *T* and *C* only with a *G*. So, the pairs *A–T, T-A, C-G, G-C* form in a way a four-letter alphabet with which messages can be spelt out. This four-letter alphabet makes up what is known as the *Genetic Code*. The genetic code is not only complex but also extensive. In 1977 Fred Sangar pointed out that the DNA code of a virus, when decoded by the computer came to a print-out of 15 metres. At this rate, the computer print-out for the human DNA would stretch to 16,000 km.

Enormously long strands of DNA intertwine within the core of living cells. So narrow and tightly coiled is this DNA that all the genes in all the cells in a human body would easily fit into a ½ inch cube. Yet, if all these DNA strands are unwound and joined together it

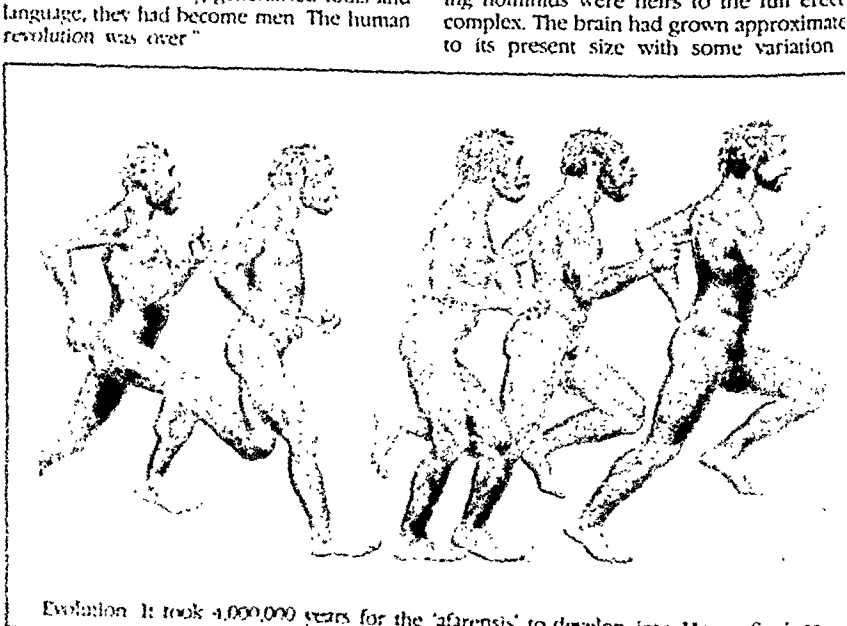
excellent vision, a keen sense of hearing but a poor sense of smell. The primates consist of monkeys, apes and man. The monkeys form a class by themselves, called the Lower Primates or Prosimians. Lemurs, lorises, tarsiers and tree shrews belong to this group.

Man and the apes together make up the Higher Primates or anthropoids. The anthropoids are in their turn divided into two groups, the *Pongidae* (apes) and the *Hominidae* (man).The hominidae differs from the pongidae in the shape and structure of the pelvis, legs and feet. This means that the hominidae can walk upright on their legs while pongidae have to use their hands as well for locomotion. The pongidae comprises four families—the gorilla and the chimpanzee of Africa and the gibbon and orang-utan of South-East-Asia. The hominidae consists of only one family—man

According to Charles F Hockett, the Homo Erectus represents our earliest truly human ancestors. He says, "As soon as the hominids had achieved upright posture, bipedal gait, the use of hands for manipulating, for carrying and for manufacturing generalised tools and language, they had become men The human revolution was over"

"The species Homo Erectus lived at son time during the Middle Pleistocene apparen in a tremendous territory extending from Ja and China to Europe, North Africa and may l to South Africa". This species was the first achieve what may be called the *Homo Erect Complex*. This consisted of six items, 1. Achieving prelanguage, 2. developing stridi gait instead of shuffling gait, 3. successfu venturing out into open savanna or grassla 4. engaging in more extensive and effecti hunts with more co-operation, 5. developi more advanced carrying techniques, and beginning to lose their hair.

The next turning point in evolution can around 50,000 years ago, in the warm inter when the ice was retreating in the Pleistocer age. Around this time, a new type of man, t *Homo Sapiens* (thinking man), began to cr up here and there in the form of vario successful mutations. "By this time", sa Charles F. Hocket, "the genus Homo co sisted of a single, tightly connected, wid spread but highly diverse species. All no striding hominids were long gone. All survi ing hominids were heirs to the full erect complex. The brain had grown approximate to its present size with some variation



Evolution It took 4,000,000 years for the 'afarensis' to develop into Homo Sapiens

NA). The ribosome with the assistance of tRNA proceeds to collect the amino acids icated in the message from the chemicals ed in the cytoplasm. Here, the amino acids linked together in the sequence given in code and the synthesis of that particular tein is completed.

very cell is equipped with the material and knowhow to build a full adult of the cies. It is therefore possible to reproduce organism if a living cell from any part of organism is available. This was proved in fifties by F. C. Steward of Cornell Universi- He placed tiny pieces from carrot slices in ss flasks containing nutritive solutions. He olved the flasks slowly and released free cells from the carrot pieces. These free cells were left to grow by themselves. They grew into complete carrot plants. An English scientist J. B. Gurdon carried out another experiment with frog's eggs. He destroyed the nuclei in the eggs. The frog eggs were then filled with nuclei taken from a tadpole's intestinal tissues. The eggs developed into exact replicas of the donor tadpole. This opens up the possibility of cloning human beings themselves by the same process.

Cloning is asexual reproduction. A male and a female need not unite to produce an offspring. But in cloning, a cell from a male will only produce a male and vice versa. This handicap is compensated by the fact that the offspring will be an exact replica of the donor.

ENETIC ENGINEERING

As biologists learned more and more of the netic code, they started investigations to see he code can be permanently changed by nipulating the genes. All attempts in this ard have been collectively categorised as *netic Engineering.*

Genetic Engineering includes fusions, dele- ns, inversions and transpositions of genes. e most celebrated of all these attempts is the bridisation of genes, that is grafting a piece the DNA of one organism to the DNA of other. Research in this technique, briefly own as *Re-combinant DNA*, was facilitated the discovery of the plasmids and of certain zymes.

Pioneer attempts in this direction have been successful that the technique has emerged a commercial proposition. *Time* writes that is technique promises to be *"the technology the 1980s just as plastics were in the 1940s, ansistors in the 1950s, computers in the 960s and micro-computers in the 1970s".*

The technique involves micro-surgery. Pre- sion tools for this surgery are provided by rtain enzymes which Paul Berg calls molecu- r scalpels and sutures. One of these enzymes alled Restriction Enzyme can cut the DNA at ny specific point required and graft it on to a oreign DNA. The sliced-out gene must have icky ends shaped like mortises in order to it firmly to the foreign DNA. This is also by the Restriction Enzyme. Given these conditions it is possible to re-combine DNAs as diverse as those of a bacterium and an animal.

The first successful attempt at grafting a piece of DNA to a foreign DNA was made by Paul Berg of Stanford University. He took his initial supply of DNA from a well known laboratory organism *SV 40* (short for simian virus 40). Its genetic structure is fairly simple with about 7 genes in all, compared to the thousands of genes that crowd the cells of higher organisms. To insert this genetic material into a bacterium, Berg used as his carrier (vector) another variety of virus called the *lamda phage*, which preys on bacteria.

The first step in the operation was to cut out a slice of SV 40's DNA molecule. This was done by the use of Restriction Enzyme. As the enzyme cut the double-stranded DNA, it left one strand jutting out at both ends. These were sticky ends and were to be inserted into the foreign DNA which was similarly cleaved with one strand standing out at each end. When the cut ends were put together the single strands joined up to become double strands and the cleavage in the DNA ring was closed up. When this was done Berg had achieved a scientific first – combining the DNAs of two species of virus into a single DNA molecule. Berg shared the 1980 Nobel Prize for Chemistry for this achievement.

The process of re-combination is as follows:

would stretch from the Earth to the Sun and back

The genes control all functions of the cell and body growth. The two main events in the life of most cells are multiplication (by division) and synthesis of proteins. Both these operations are carried out on the basis of the blueprints coded in the genes.

Before a cell divides, the DNA ladder splits down the middle. The nucleotides *As* separate from the *Ts* and the *Cs* from the *Gs* much in the same way as a zipper is pulled apart. Now, the separated nucleotides A, T, C, and G pick up appropriate partners from the free-floating nucleotides in the cell. Thus the split ladder becomes two whole ladders of DNA, each an identical copy of the other Once the division of the DNA is completed the rest of the cells, other organelles also duplicate, ultimately producing two cells of the same type.

The replication of cells in growing bodies is followed by differentiation. Life in most species begins from a single fertilised egg or cell The single cell becomes a double cell, then a quadruple and so on At the same time different sets of genes work in different cells evolving specific physical traits, while specialised cells form different organs of the body, hands, legs, brain, heart etc This process is known as *differentiation*

Differentiation implies strictly regulated work. The cells concerned concentrate on the task in hand and cease all other activities and when the work is completed they stop working. This switching on and off of genetic activities is achieved by the presence of two molecules attached to the genes – *inducers* and *repressors*

The genes which we inherit from our parents determine our *hereditary* traits Hereditary characteristics are not transmitted in a package, as it were. Different genes are responsible for different inherited traits. Each gene functions independently of other genes in this respect The genes for a particular trait are found at the particular locations in the chromosomes

Chromosomes are thread-like boides found in the nucleus of the cell They are always found in pairs Chromosomes vary in number according to species The fruitfly, for example, has 4 pairs or 8 chromosomes in all, and the garden pea has 7 pairs (14 in all) Mice have 20 (40) and humans 23 (46)

Our 46 chromosomes arranged in single fil would measure more than 6 feet. Yet they ar contained in the nucleus which is abo forty-thousandths of an inch. The nucleus filled with nucleic acids of two kinds *Ri Nucleic Acid*, RNA and *Deoxyribo Nucleic Ac* DNA. The DNA is concentrated in the chron somes while RNA is seen concentrated in nucleoli, both of which are in the nucl

One of the primary functions of the cell i manufacture proteins. The human body quires thousands of different proteins these are built from 20 amino acids. Each (or a distinct segment of the DNA st contains instructions for making a sp protein.

The instructions are coded into p sequence of nucleotides. Just as we can c the meaning of a sentence by rearrangi words, the genes can spell an im vocabulary of proteins using only th nucleotides of the DNA – A, T, C, and G A, T, C, and G in one set of human c somes (46 in number) can be put tog billions of different ways.

One geneticist, H. J. Muller, has e that the number of different ways c together all the As, Ts, Cs, and Gs wou figure 256 followed by 2.4 billion zer a figure that boggles the imagination be a lifetime job if any one sat dow out that figure in full. Or, just tr

In protein synthesis the DNA is the RNA (Ribo Nucleic Acid). RNA strand as against the double strand and is different in composition. Th the RNA has *Uracil (U)* in the pla *Thymine (T)* RNA is of two kinds RNA (mRNA) and transfer RNA (tR protein is to be prepared the con opens. RNA (mRNA) nucleotides selves to the gene and go on g ribbon. This ribbon is the mRNA code for making the specific p

Proceeding from the gene in leus the mRNA moves out into looking for a ribosome for the a particular protein. The sequenc and Gs on the messenger R groups of 3-letter words like A etc. These 3-letter words are

The message carried by the (mRNA) is transferred to th

owerful and awesome skill acquired by man nce the splitting of the atom. It is an paralleled exploratory tool for examining d in the process changing, the complicated achinery of heredity. If a gene of unknown nction is inserted into a bacterium, it can act a probe that lets scientists see precisely hat it does. By such techniques researchers ill finally speed up the formidable task of lentifying, locating and analysing every one the more than 100,000 genes found in the uman cell".

The Recombinant DNA technique opens out any avenues of beneficial research. First omes the production of therapeutic proteins ke interferon, insulin, hormones etc. Interron is a powerful antiviral agent made by the uman body. But its supply is very limited onsidering the demand. Its extraction from lood cells and other human tissues is costly o.

A single injection of interferon costs as uch as 150 dollars. If, however, bacteria can e programmed to produce it (as has been one by Weismann early in 1981) the supply of interferon will be plentiful and cheap, coming down to a maximum of 1 dollar per shot. The reason is that as a manufacturing unit bacteria are unrivalled.....Mechanical assembly lines, however sophisticated, can never compete with them. Replicating every 20 minutes a single bacterium can produce millions of bacteria in 24 hours all of them turning out interferon in unbroken succession.

The same is the case with insulin, growth hormones, vaccines etc. Already genetically engineered bacteria have emerged as suppliers of scarce drugs like *enzyme urokinase* used to dissolve blood clots and *betaendorphin*, one of brain's own pain killers. The human growth hormone used to treat dwarfism, formerly in short supply, is now being turned out by bacteria tailored to produce it.

The case of insulin is slightly different. Insulin was being extracted from the pancreases of cows and pigs. This was enough supply. But it turned out that some people were allergic to animal insulin. Now, bacteria specially programmed for the purpose are producing insulin which avoids allergies.

FOOD & NUTRITION

Human diet is not restricted to any special ategory of food. Man can and does eat a ariety of foods, of both plant and animal rigin. Variety is, for him, the spice of life– nore so in foods, than in anything else. This atural desire for variety is justified by the fact hat no single food provides us with all the utrients that we need.

Cereals, like rice or wheat which form the aple food of mankind, supply us only with a raction of our nutritional requirements. We ave to supplement cereals with other foods hat provide plenty of fats and proteins and inor quantities of a number of vitamins and inerals. This means that the larger our diet heet, the better our health will be. This will ecome evident, if we analyse what nutrients our foods contain and in what proportion.

The nutrients found in foodstuffs may roadly be classified as (1) Carbohydrates, (2) ats, (3) Proteins, (4) Minerals, (5) Vitamins nd (6) Water. Proteins, fats and carbohydrates re called Macro Nutrients.

Proteins (from the Greek word *Proteios* meaning first) are the most versatile elements in the body. They are the chief substances of the cells of the body. They form important constituents of muscles and other tissues and vital fluids like blood. Enzymes, which assist in the digestion of food, and anti-bodies which are the body defences against infections are also mainly protein in nature.

The nutritive value of protein depends on the essential *amino acid* composition. Amino acids are the bricks with which tissue protein is built and replaced. There are some 20 amino acids commonly found in dietary proteins. Of these, 10 amino acids can be synthesised by the body itself, whether by mutual conversion among amino acids or from non-protein sources. But 10 amino acids cannot be so synthesised and have to be supplied through diet. These are called *essential amino acids*. Adults require 8 essential amino acids while children require 9 or 10.

Fat, like protein, is a necessary ingredient in diet and is of value to the body in a number of ways. It is a concentrated source of energy and

Genetic Finger- printing

The first laboratory in the world to offer a service for people wanting to know the genetic relationship between individuals opened for business last week. The laboratory uses a technique called "genetic fingerprinting", developed by scientists at the University of Leicester. The technique distinguishes between individuals, whether they are humans or animals, and can determine the parentage of children.

The police are studying the technique with a view to using it for confirming whether a suspect was at the scene of a crime. Animal breeders want to use it to guarantee the pedigree of farm and domestic animals.

In genetic fingerprinting, scientists extract genetic material, DNA, from the sample of tissue, whether it is blood, semen, skin, or the root of a hair. They add enzymes to the DNA that chop it into tiny pieces of unequal size. They then put the fragments into a gel, and an electric field separates the larger DNA fragments from the smaller ones.

The scientists then transfer the DNA from the gel to a nylon membrane by a process called Southern blotting—the fragments of DNA move from the gel to the membrane as the solution of DNA is drawn up by capillary forces created by blotting paper placed on top of the nylon membrane. The position of the DNA fragments in the nylon membrane exactly matches their position in the gel.

The next step is to add tiny pieces of DNA that are radioactively labelled. These DNA "probes" are built to identify regions of DNA known as hypervariables. Alex Jeffreys of the University of Leicester found that people are unique in terms of the distribution of hypervariables in their DNA. A child will share some of its hypervariables with its biological mother and some with its biological father.

Alec Jeffreys at Leicester University, who discovered DNA "fingerprinting"

After washing the nylon membrane, the only radioactivity left will be the probes that have stuck to hypervariable regions. Put the membrane next to X-ray film, and dark bands will appear where the probes have stuck to these regions. The distribution of the bands is unique to an individual and a child's "genetic fingerprint" will be an amalgam of the fingerprints of its two parents.

An E. coli bacterium is broken up by a detergent and the pieces are spun in a centrifuge to isolate the plasmids. The plasmid is then immersed in a restriction enzyme which cleaves the plasmid at the specified place. The same enzyme is used to snip off a piece of DNA from a virus. The foreign gene (from the virus) is inserted into the cleavage of the bacterial plasmid and a re-combined molecule is formed. The new hybrid plasmid is then introduced into a bacterium. The bacterial cell divides and with it the plasmid also divides and multiplies.

"Gene splicing," says Time, "is the most

powerful and awesome skill acquired by man since the splitting of the atom. It is an unparalleled exploratory tool for examining and in the process changing, the complicated machinery of heredity. If a gene of unknown function is inserted into a bacterium, it can act as a probe that lets scientists see precisely what it does. By such techniques researchers will finally speed up the formidable task of identifying, locating and analysing every one of the more than 100,000 genes found in the human cell".

The Recombinant DNA technique opens out many avenues of beneficial research. First comes the production of therapeutic proteins like interferon, insulin, hormones etc. Interferon is a powerful antiviral agent made by the human body. But its supply is very limited considering the demand. Its extraction from blood cells and other human tissues is costly too.

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Cereals, like rice or wheat which form the staple food of mankind, supply us only with a fraction of our nutritional requirements. We have to supplement cereals with other foods that provide plenty of fats and proteins and minor quantities of a number of vitamins and minerals. This means that the larger our diet sheet, the better our health will be. This will become evident, if we analyse what nutrients our foods contain and in what proportion.

The nutrients found in foodstuffs may broadly be classified as (1) Carbohydrates, (2) Fats, (3) Proteins, (4) Minerals, (5) Vitamins and (6) Water. Proteins, fats and carbohydrates are called Macro Nutrients.

Proteins (from the Greek word *Proteios* meaning first) are the most versatile elements in the body. They are the chief substances of the cells of the body. They form important constituents of muscles and other tissues and vital fluids like blood. Enzymes, which assist in the digestion of food, and anti-bodies which are the body defences against infections are also mainly protein in nature.

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Fat, like protein, is a necessary ingredient in diet and is of value to the body in a number of ways. It is a concentrated source of energy and

supplies per unit weight more than double the energy furnished by either protein or carbohydrates. Some fats, especially vegetable oils, provide what are called *essential fatty acids*, linoleic and arachidonic acids, to the body.

Protein Value of Indian Foods

Foodstuffs	Biological value	Protein efficiency ratio
Rice	68	2.2
Wheat	65	1.5
Maize	59	1.2
Bengal gram	68	1.7
Red gram	57	1.5
Groundnut	55	1.7
Gingelly seeds	62	1.8
Egg	94	3.9
Milk	84	3.1
Meat	74	2.3
Fish	76	3.5

Fats that circulate in the blood are of many types – triglycerides, phospholipids, etc. The quantity and quality of fat consumed affects the level of *cholesterol* in the blood. Some fats like groundnut oil, sesame oil or safflower oil which contain a high proportion of poly-unsaturated fatty acids do not increase blood levels greatly. Others like coconut butter, ghee and hydrogenated vegetable (vanaspati) contain high proportions of *saturated fatty acids* and greatly increase levels. It is also found that consumption of smaller amounts of fat at different times causes less increase of cholesterol than a large amount of fat taken at a time.

Carbohydrates include every kind of starch and sugar. Grainfoods are largely composed of starch and foodstuffs like cane sugar and glucose are pure carbohydrates. They form the main source of energy for the body. Being a cheap source of energy, carbohydrates form the bulk of Indian diet.

A balanced diet simply means a diet that will supply all the nutrients necessary for the growth and development of the body. In India, a balanced diet has become an imperative since most Indians consume foods that provide more carbohydrates and fats than proteins.

The table below gives the amounts of the various foods that will make up a balanced diet for the average Indian. The quantity of fo varies according to age and the type of wo

Composition of Balanced Di

Foodstuffs	Vegetarian Amount	Non-Vegetarian (g)	Vegetarian Calories	Vegetarian Protein (g)	Vegetar Calories	N Protein
Cereals	325	325	1150	29	1150	2
Dal & Nuts	100	50	320	22	160	1
Milk	200 (ml)	100 (ml)	235	8	117	
Root vegetables	150	150	145	2	145	
Other vegetables	100	100	50	3	50	
Leafy vegetables	100	100	"	"	"	"
Fruits	100	100	80	–	80	–
Egg	(1 no.)	50	–	–	85	
Meat/Fish	–	100	–	–	195	1
Fat	50	50	450	–	450	–
Sugar/ Jaggery	30	30	120	–	120	–
Total			2550	64	2552	7

Vitamins and minerals comprise what a called *micro nutrients* as distinguished fr proteins, fats and carbohydrates which a called *macro nutrients*.

Vitamins can be broadly divided into f soluble and water-soluble vitamins. Vitamin D, E and K are fat-soluble vitamins. Vitamin and B (including Vitamins B_1, B_2 and oth B-Group vitamins) are water-soluble.

The vitamins are necessary auxiliaries metabolism. They combine with specific pr teins, as parts of the various oxidative enzy systems which are concerned with the bre down of carbohydrates, proteins and fat in t body. Thus, they are intimately involved in t mechanism which releases energy, carb dioxide and water as the end products metabolism.

A large number of minerals is present in t body and performs a variety of functio Minerals account for about 4 per cent of t body weight. Calcium and phosphorus for about three-fourths of the mineral elemen Five other minerals – potassium, sulphu sodium, chlorine and magnesium – accou

for most of the rest. Many elements are present in such minute quantities that they are called *trace elements* or *micro-nutrients.*

Water is a vital constituent of diet. An average man contains about 45 litres of water (70 per cent of the body weight). The cells contain 30 litres. Three litres are in the plasma of the blood, where the suspended cells make a total volume of blood upto 5 litres. The remaining 12 litres (45–33) fill the space between groups of cells. This is tissue fluid which bathes all the cells of the body.

Water is absolutely necessary for the digestion and absorption of the foods taken in. It is the great solvent and neutraliser in the body. It is the substance in which bodily chemical reactions take place. Water is the carrier or transporting medium for all nutrients and body substances. It regulates body temperature. It is the great purifying agent in the body and removes waste materials in the form of tears, perspiration, urine and faeces. Watery substances act as lubricants in the body, especially in the joints. It is a part of all body tissues and fluids.

Acidosis, alkalosis and dehydration, oedema, fever, shock, uraemia and constipation are some of the clinical signs of inadequate salt and water in the body. *Sources:* The body obtains water mainly from the fluids we drink, from the solids we eat and also from the oxidation of energy foods. Fats and carbohydrates are oxidised in the body to carbon dioxide and water.

Cereals like rice, wheat and millets, ragi, cholam and bajra form the main food in India. Cereals are rich in carbohydrates. They generally contain 6 to 12 per cent protein, but these proteins are usually deficient in the essential amino acid *lysine.* Rice protein, however, is richer in *lysine* than other cereals.

Most cereal grains are poor in mineral content and rice is especially poor. Ragi is, however, rich in minerals, especially in calcium, and bajra in iron. Whole cereal grains are important sources of B-vitamins but in milling, rice loses the outer layers containing thiamine. Parboiled rice, even when milled, does not lose its thiamine content. Except yellow maize, which contains some amounts of carotene, no other cereal grain is a source of vitamin A or C.

Pulses or legumes as they are called, are rich in proteins. Pulse proteins, however, are of relatively low biological value because of the deficiency of the essential amino acid *methionine* but they are rich in *lysine.* Pulses are not rich sources of minerals but they are rich in B-vitamins. Dried pulses do not contain vitamin C but if they are germinated significant amounts of vitamin C are generated.

Most of the green leafy vegetables are rich sources of calcium, iron, carotene, vitamin C, riboflavin and folic acid.

Roots and tubers are rich in carbohydrates. But foods like carrot are also rich in carotene (Vitamin A); those like potato contain significant amounts of vitamin C, while foods like tapioca contain calcium also.

Other Vegetables are those which do not fall into the category of leafy vegetables or root vegetables These vegetables are shoots, like lady's finger, cucumber, tomato, bitter gourd, snake gourd, brinjal, etc. They are fairly good sources of vitamins and minerals.

Nuts and oil seeds are good sources of fat (oil), protein and minerals and fair sources of vitamins: eg., groundnut and cashewnut.

Fruits in general are rich in vitamin C, particularly, gooseberry (amla), guava (perakka) and citrus fruits. Yellow fruits like mango and papaya contain carotene and dried fruits like dates are sources of iron.

Fish and sea foods are rich sources of protein, B-vitamins and also minerals, especially calcium.

Fleshy foods are rich sources of protein and B-vitamins, especially B_{12}. They are generally deficient in vitamin A, but liver is an exception.

Egg is a rich source of all nutrients except vitamin C. Its protein is of high quality.

Milk & milk products. Milk is an ideal food for infants and young children and a good supplementary food for all. It contains all vital nutrients, except vitamin C and iron.

Food is the only source of energy for humans This means that our dietary sheet must change according to our requirements of energy "If food is to perform the functions in the body it is meant to, namely producing energy, providing materials for body building, and regulating body processes, meals must be planned

Good food selection, the cornerstone of good nutrition, must be learned as unfortu-

nately there is no automatic built-in mechanism in human beings to direct the choice of foods which build healthy bodies and which keep them running satisfactorily from day to day."

The question what food we should eat and how much, depends on the amount of energy we need. Food energy is measured in terms of heat units called calories. A physiological calorie, also called large calorie or kilocalorie (abbreviated as Kcal), is the amount of necessary to raise the temperature of kilogram of water by one degree centigr One gram of protein or carbohydrates yiel calories. One gram of fat yields 9 calc while the same quantity of alcohol yield

The following tables show the height-we ratio of 1. Adolescents and 2. Adults.

Adults: Height-Weight Ratio

Men				*Women*			
Weight in kg				*Weight in kg*			
Height	*Age*			*Height*	*Age*		
cms	*20*	*35*	*50*	*cms*	*20*	*35*	*40*
148	42.7	47.6	50.9	148	38.6	44.0	47.1
153	45.4	50.4	53.5	150	40.3	44.8	47.7
158	48.6	53.5	56.3	153	41.9	46.6	49.5
163	51.1	56.3	59.4	155	42.8	47.7	50.1
168	54.0	60.1	63.7	158	44.9	49.5	52.1
173	58.1	64.0	68.3	160	46.0	50.6	53.0
178	61.9	68.5	72.4	163	47.3	52.1	54.9
183	66.0	73.3	77.8	165	49.1	54.1	57.3

Adolescents: Height-Weight Ratio

Boys			*Girls*	
Height (cm)	*Weight (kg)*	*Age (yrs)*	*Height (cm)*	*Weig (kg*
112.4	19.2	5+	112.5	18
118.8	21.9	5+	117.8	20.
123.2	24.3	7+	123.2	23.
127.9	26.1	8+	127.2	26.
133.3	29.2	9+	132.5	29.
138.0	31.0	10+	138.2	32.
142.7	34.0	11+	145.1	36.
148.4	37.8	12+	151.5	42.
155.0	42.4	13+	158.8	43.
162.6	47.3	14+	154.5	45.
165.5	51.1	15+	155.8	47.
168.9	54.8	16+	155.8	49.

LANDMARKS OF SCIENCE

Science, from the Latin *Scientia*, means learning or knowledge in its widest sense. In *English*, the word has a restricted application. It generally means physical and biological sciences.

Primitive science can hardly be called science. It was a hotch-potch of superstition, magic and rituals. Nevertheless, this hotch-potch contained elements that were destined to become the foundations of science.

At first, all natural phenomena—physical and biological—were interpreted as the operations of supernatural powers, which had to be worshipped, placated or appeased by magic rites and practices.

This primitive concept was refined and developed by the old world philosophers from Aristotle (4th cen. B.C.) to Aquinas (13th cent. A.D.) These philosophers eliminated much of the superstitious dross that had accumulated, but they could not dissociate science from metaphysics or religion.

The Greek philosophers, Aristotle in particular, considered science and philosophy one and the same. In the Middle Ages bo science and philosophy had become bou up with theology. Aquinas, the greatest of t scholastic philosophers, regarded all the thr subjects as parts of one grand system philosophy.

It was left to Galileo to break up th misalliance and to strike out a new path f science—the path of experimental proof. Th method initiated by Galileo was completed b Newton, and modern science was born. Th essence of the new method was an appeal t sheer facts for proof.

In India too, science grew up from religio The scientific lore of the Indus Valley peopl must have been very large, judging from th high degree of civilization they had attaine But we know little or nothing about them With the coming of the Aryans, we get our firs glimpses of science in India.

Theories and Principles of major scientifi breakthroughs are given below in chronolo

al order. A stands for Author and T for eatise. The letters A and/or T are shown only places where the names of the author and e treatise are mentioned together or where ere is a chance of mistaking one for the her.

Yajurveda (T), c. 1000 B.C., India—Numers named up to 10^{12} (million-million)—ecimal system, addition, subtraction, multiication, division, fractions. *Astronomy*—the akshatra (stars and constellations) system. numeration of 27 or 28 *Nakshatras* headed Krithika (Pleiades).

Taittiriyasamhita (T), 800-700 B.C., India—rogressive arithmetical series—odd and even umbers.

Panchavimsa Brahmana (T), 800-700 B.C., ndia—Geometrical progression.

Satapatha Brahmana (T), 800-700 B.C., ndia—Summation of arithmetical and eometrical series.

Sulba Sutras (T), 700-600 B.C., India, Geometry—Rules for drawing perpendiculars, quares, isosceles triangles, trapezium, etc. Combination and transformation of rectilineal igures.

Lagadha (A). Vedangajyotisa (T), 700-600 B.C., India, Astronomy.—Elaboration of calenlrical science—summer and winter solstices. Rule for determining length of days between olstices.

Baudhayana (A), 600-500 B.C, India, Geometry—anticipation of the Pythagorean heorem—"The diagonal of a rectangle produces by itself both (the areas) produced eparately by its two sides." Areas of triangles, arallelograms, trapezium, etc. Volumes of rism, cylinder, etc. The concept of *Algebra*—quadriatic equations.

Manava, 600-500 B.C., India—Fixing the alue of π to 5 decimal places at 3.16049.

Apastamba, 600-500 B.C., India—Square root and cube root.

Katyayana, 500-400 B.C., India—Indeterminate Equations.

Kautilya (A) Arthasastra (T), 400-300 B.C., India—Mining, metallurgy, etc. - incidental references.

Bhadrabahu (A) Kalpasutra (T), 300 B.C., India—Summation of geometrical series.

Euclid (A). Elements (T), 300 B.C., Greece—The first formal statement of geometrical principles.

Pingala (A). Chandah Sutra (T), 200 B.C., India—Permutations and combinations–meru prasta or Pascal's triangle.

Archimedes, d. 209 B.C. 200 B.C., Greece, Hydrostatics—the laws of floating bodies.

Aristarchus of Samos (A), c. 200 B.C., Greece—Observations and calculations regarding rotation of the Earth and revolution round the Sun.

Eratosthenes, c. 200 B.C., Greece—First measurement of the circumference of the Earth.

Chiu Chang Suan Shu (T), 2nd Cent. B.C., China Arithmetic—in nine sections—area of the segment of a circle.

Hipparchus, 2nd Cent B.C, Greece—Measurement of the distances to the Sun and the Moon—precession of the equinoxes.

Claudius Ptolemy (A) Almagest (T) A.D 140, Greece—A synthesis of the current system of astronomical knowledge in Europe—remained the Bible of European astronomers for a long time.

Suryasiddhanta (T), A.D 400, India—The first important astronomical treatise in India—was continuously revised and updated by subsequent astronomers

Aryabhata (A) Aryabhatiya (T), A.D. 5th Cent., India, Astronomy— Theory of the rotation of the Earth, epicyclic theory of planetary motions *Mathematics—the values of the π(3 1416) and sines—alphabetical system of expressing decimal place value notation—extraction of square and cube roots—indeterminate equations of the first order.*

Brahmagupta (A) Brahmasphuta Siddhanta and Khandakhadyaka (T), A.D. 6th Cent, India, Astronomy—mean planetary motions, true planetary motions, problems of time, space, distance, lunar and solar eclipses—risings and settings of planets, Moon's cusps and shadows—conjunctions of planets—*Mathematics*—systematic operations with zero

Varahamihira (A). Pancha Siddhanta (T) A.D 6th Cent, India—A survey of the development of astronomy and an exposition of astronomical theories.
works by Varahamihira i
ta, Leghujataka and *Y*

Amarasimha (A), Amarakosha (T), A.D. 6th Cent., India—A lexicon—classification and synonyms of plants, animals, metals and minerals.

Bhaskara I (A), Mahabhaskariya (T), A.D. 7th Cent., India—Mean longitude of planets—Longitude connection–Time, place, direction, spherical trigonometry, latitudes and longitudes of junctions, stars—True longitudes of planets, rising, setting and conjunction of planets, astronomical constants.

Muhammed Ibn Ibrahim (A) Sindhind and Arkand (T), A.D. 8th Cent., Middle East—Translations into Arabic of Brahmagupta's *Brahmasphuta Siddhanta (Sindhind)* and *Khandakhadyaka (Arkand)*

Jahir Ibn Hayyan (Geber), A.D. 8th Cent., Middle East—Treatise on alchemy.

Mahavira (A), Ganitasara Samgraha (T), A.D. 9th Cent., India—A comprehensive compilation in mathematics including geometry, solid mensuration, quadratic, biquadratic and cubic equations and permutations and combinations.

Al-Khwarizzi (T), A.D 9th Cent., Middle East—Theory of numbers in Arabic.

Bhaskara II (A) Siddhanta Siromani (T), A.D 9th Cent., India—Mathematical and astronomical work—Beginnings of integral and differential calculus—the zenith of ancient Indian mathematics.

Govinda Bhagat (A) Rasahrydayi (T), A.D. 10th Cent., India—A treatise on alchemy.

Manjula (T), A.D 10th Cent., India—Astronomical treatise—precession of equinoxes.

Al Hasan, A.D. 11th Cent., Middle East—Arab physicist—Magnification and Refraction of light.

Somadeva (A) Manasollasa (T), 12th Cent., India—Alchemy

Gangadhara (A) Gandhasara (T), 12th Cent., India—A treatise on cosmetics

Rasaratnakara (T) Rasaratnakara (T), 13th Cent., India—Treatises on alchemy

Leonardo of Pisa (A) Liber Abaci (T), 13th Cent., Italy—An exposition in Latin of Arabic arithmetic including decimal place value numeration, zero etc. This was the main source through which Indian numerals penetrated Europe

Rasaprakasha (T), 16th Cent., India—A treatise on alchemy—one of the many treatises o alchemy prevalent in India.

Nicolas Copernicus, 1543, Poland, Astr nomy— Foundation of modern astronomy-helio-centric structure of the solar system.

Georg Bauer (Agricola) (A). De Re Metalic (T), 1556, Germany—Establishment of th Science of Minerals.

Gerhard Kremer, 1559, Netherlands-Cylindrical Projection Map (Mercator's Proje tion) – Establishment of the Science of *Ca tography* (map making).

Galileo Galilei, 1589–92, Italy – Discover of the laws of motion – Science of *Dynamic*

William Gilbert (A). De Magnete (T), 160 U.K.—'The Earth itself is a great magnet'—th basis of *Magnetism* and *Electricity*.

Johannes Kepler, 1609–19, Germany—Th three fundamental laws of planetary motio

John Napier, 1614, U.K., Logarithms—a ne method of arithmetical calculations.

Rene Descartes, 1619, France—Formulatio of *Analytical Geometry*.

Francis Bacon (A). Novum Organum (T 1620, U.K.—First formal exposition of *Indu tive Logic*.

Robert Boyle, 1661, U.K.—Distinction b tween chemical elements and chemical com pounds; the Science of *Chemistry*.

Robert Hooke, 1665, U.K.—Hooke's law.

Isaac Newton, c. 1670, U.K.—Discovery *Calculus*

Gottfried Leibnitz, 1675-76, Germany—Di covery of *Calculus*.

Olaus Romer, 1676, Denmark—Measur ment of the velocity of light.

Leeuwenhoek, 1676, Netherlands—look into the microscopic world and describ bacteria.

Isaac Newton, 1687, U.K.—Laws of gravit tion and Universal laws of motion.

Christian Huygens, 1690, Netherlands—Th wave theory of light.

Stephen Gray, 1729, U.K.—Electrical co ductors and non-conductors – Insulation.

Joseph Black, 1728–1769, U.K.—Theory specific heat.

Carolus Linnaeus (Karl von Linne) (A Systema Naturae (T), 1735, Sweden—Found tion of the Science of *Taxonomy*—*Divisions*

From Morse Code to Spiricom

Man began to communicate by electromagnetic system only about 150 years ago.

In 1838, Samuel F. B. Morse demonstrated that clicks from an electromagnet could carry a message along a wire. From Washington to Baltimore, he sent the message, "What has God wrought?"

In 1876, Alexander Graham Bell demonstrated that wires could carry not only Morse's code, but the tones of the human voice as well, giving rise to modern telecommunications.

In 1877, Thomas Edison used a needle to capture the vibrations of a telephone mouthpiece, first on paraffin paper, then on tinfoil, then wax. He'd invented the magnetic audio and video recorders, as well as the forerunner to floppy disks.

In 1896, Guglielmo Marconi demonstrated that the dots and dashes of telegraphy could be transmitted without a wire.

In 1907, Lee DeForest proved that the "wireless" could carry the human voice too. In 1912, Edwin Armstrong made the regenerative circuits and in 1918, the super-hetherodyne-radio.

In 1926, James L. Baird demonstrated the first TV broadcasts by transmitting sound and halftone pictures. Helping refine the technology from Scotland were America's Ernst Alexanderson, Edgar Love and Vladimir Zworykin.

In 1940, Peter Goldmark demonstrated that the same TV theory could broadcast pictures in colour. He did it through the CBS (Columbia Boradcasting Service) labs in the US.

In 1969, when man first landed on the moon, it was natural that millions of people would expect to participate by means of radio and TV. And they did, via live telecast from the moon's surface.

Man's exploration of space did not stop with the landing on the moon. Photos and telemetric data have been transmitted 1.2 billion miles from unmanned spacecraft. The communications capabilities of the inhabitants of "spaceship earth" seem limitless indeed.

An even more exciting breakthrough in communication is occurring right now. After 24 years of research, America's Metascience Foundation has developed a device called Spiricom that is claimed to have communicated with "spirits of the dead". This electronic instrument is able to pick up sound waves at very high bandwidths and initial research has yielded some positive results, according to Metascience president George Meek. More research is now going on at the lab in Boston, Massachusetts.

William Wollasten & Von Fraunhofer, 1814. Germany—Discovery of dark lines in solar spectrum.

Anders Angstrom (A), 1814–1874, Sweden – Angstrom unit (ten billionth of a metre).

William Smith (A), 1815, U.K. – Stratigraphic geology for dating geological formations.

Christian Oersted (A), 1820, Denmark – Discovery of electromagnetism.

Von Helmholtz (A), 1821–1894, Germany—Formulation of the law of conservation of energy—the first law of thermodynamics

Nikolai Lobachevsky (A), 1825–26, Russia—Formulation of non-Euclidean geometry.

Janos Bolyai (A), 1825-26, Hungary—Formulation of non-Euclidean geometry

George S Ohm (A), 1827, Germany—Statement of the law of electric conduction (Ohm's Law).

Friedrich Wohler (A), 1828, Germany—Synthesis of an organic compound from inorganic matter.

Michael Faraday (A), 1830–31, U.K.—Discovery of electromagnetic induction

Julius R Von Mayer, 1840, Germany—The law of conservation of energy—First law of thermodynamics.

Schonbein, 1840, Germany—Identification of Ozone

Rudolf Clausius, 1850, Germany—The concept of entropy—Second law of thermodynamics

Edward Frankland, 1852, U.K.—Concept of chemical valency

Michael Faraday, 1852, U.K.—Electrolysis.

George Boole (A), 1854, U.K.—Invention of Boolean algebra—the mathematization of logic

Mathew F Maury, 1855, U.S.—Founding of the science of Oceanography

Von Bunsen and Gustav Kirchoff (A), 1855 Germany—Spectrography to identify chemical elements by their spectra.

Charles Darwin (A), 1858–59, U.K.—Origin of Species (T)

A. R. Wallace (A), 1858–59, U.K. – The Theory of Evolution—Natural Selection.

Frederich Kekule (A), 1861, Germany—Establishment of organic chemistry as the chemistry of carbon compounds.

James Maxwell (A), 1864, U.K.—The mat matical theory of electromagnetic induct

Gregor Mendel (A), 1865, Austria—F mulation of the laws of *Genetics* (heredi

Dimitri Mendeleeff (A), 1869, Russia periodic law and periodic table of eleme

Georg Cantor (A), 1884, Germa Mathematics—Development of set theory, basis of modern mathematics.

Svante Arrhenius (A), 1884, Sweden—C cept of ionisation of solutions.

Heinrich Hertz (A), 1887, Germany—E to-magnetic waves called Hertz waves or ra waves.

William Roentgen (A), 1895, Germany Short wave length ray (X-ray).

Antoine Becquerel (A), 1896, France—I covery of radio activity in uranium.

Joseph Thomson (A), 1897, U.K.—Discov of the electron

Sigmund Freud 1900, Austria—Found of the Science of Psychoanalysis.

Max Planck (A), 1900, Germany— quantum theory.

Ernest Rutherford (A), 1903, U.K.—Natur radio active disintegration—emission Alpha, Beta and Gamma rays.

K. E. Tsiolkovsky (A), 1903, Russia—F mulation of the fundamental principle rocket flights.

Binet & Simon, 1905, France—Intellige Tests.

Albert Einstein, 1905–16 America General and special theories of relativity

Sockie, 1910, (W. Germany) Switzerland Identification of Cosmic rays.

H Kammerlingh-Onnes, 1911, Holland Discovery of Superconductivity.

Soddy, 1912, U.K.—Theory of Isotopes

Niels H.D. Bohr, 1913, Denmark—Formu tion of the concept of the planetary ato

Henry G. L. Mosly, 1913, U.K.—Establi ment of the concept of atomic number.

Bertrand A. Russel, Alfred North Whitehe 1913, U.K.—Completion of *Principia Mat matica* (T), a major contribution to symbo logic.

Rutherford, 1919, U.K.—Splitting the at

Whitehead (England), Louis V. de Broglie (France) and Erwin Schroedinger (Germany), 1924-26—Formulation of wave mechanics in atomic theory.

Werner Heisenberg, 1925, Germany—Formulation of quantum mechanics in atomic theory.

Ivan Petrovich Pavlov, 1926, Russia, Biology—Conditioned reflexes.

Wolfgang Pauli, 1931, Germany—Postulation of existence of the neutrino—almost a quarter century before it was directly observed (1955).

James Chadwick, 1932, U.K.—Discovery of the neutron.

Carl D. Anderson, 1932, America—Discovery of the positron.

Murphy, 1934, America—Deuterium (heavy hydrogen). Enrico Fermi (b. Italy). Neutron bombardment of uranium, leading to the production of transuranium elements.

Lise Meitner (Austrian Swedish), Otto Hahn (German), and Fritz Strassmann (German), 1938—First nuclear fission of uranium.

J. Robert Oppenheimer and others, 1945, America—Explosion of first atomic bomb.

Willard F. Libby, 1947, America—Development of atomic time clock—a method for determining geological age, by measuring the amount of radio active carbon 14 in an organic or carbon-containing object.

John Bardeen, Walter H. Brattain and William Shockley, 1948, America—Formulation of theory of the transistor and its construction.

Atomic Energy Commission, 1951, America—Explosion of first nuclear fusion (hydrogen) bomb.

Charles H. Townes, 1954, America—Construction of first Maser.

Emilo G. Segre, American (b. Italy), Owen Chamberlain (American), 1955 America—Production and detection of the sub-atomic particles, the antiproton.

Gordon Gold, 1957, America—Construction of the first Laser.

USSR Academy of Science, 1957, Russia—First man-made satellite Sputnik put into orbit around the Earth.

James A. Van Allen, 1958, America—Discovery of belts of high energy radiation

Einstein's Last Dream

From the earliest times, man's dream has been to comprehend the complexity of nature in terms of as few unifying concepts as possible. In this context, in the history of physics, three names stand together; those of Newton, Maxwell and Einstein, as among the greatest synthesisers and unifiers of all time. Newton, some three hundred years ago, identified and unified terrestrial gravity (the force which makes apples fall) with celestial gravity (the force which keeps planets in orbit around the Sun). Maxwell, two hundred years later, unified the forces, of electricity and magnetism. He further showed that light was one manifestation of this unification.

Einstein, in 1905, unified the concepts of space and time. Eleven years later, he could show that Newton's gravity was a manifestation of this audacious unification in the sense that Newtonian gravity signified a curvature of the united space-time manifold. The question which Einstein then asked was this: Could Maxwell's electromagnetism be united with Newtonian gravity in the same way that Maxwell had united electricity and magnetism? If so, was Maxwell's electromagnetism also a manifestation of some other geometrical property of the space-time manifold just as Newtonian gravity was a manifestation of its curvature? This was Einstein's last dream. The researches of Abdus Salam and others lead us to believe that weak and strong forces can be combined with forces of electromagnetism to form one unified fo

surrounding the Earth.

Francis H. C. Crick (Britain), James D. Watson (America) and Maurice H. F. Wilkins (Britain), 1962—Discovery of the structure of the DNA.

Thomas A. Matheus and Allen R. Sandage, 1963, America—Discovery of quasars.

David Harker and others, 1967, America—Deciphering the structure of Ribonucleic Acid (RNA).

R. Bruce Merrifield and others, 1968, America—Synthesizing of ribonucleic molecule.

Antony Hewish (Cambridge), 1968, U.K.—Identification of Pulsars.

Har Gobind Khorana, 1970, America—makes the first synthetic gene, a duplicate of a gene found in yeast cell.

H. Temin, 1971, U.S.—Discovery of reverse transcriptase for synthesizing DNA from RNA.

National Aeronautical and Space Administration (NASA), 1973, US—The first orbiting laboratory—the Skylab.

Sam Ting and others, Burt Richter and others, 1974, U.S.—Detection of pai particles.

H. G. Khorana (M.I.T.), 1976, U.S—replicates a bacterial gene and plants it in a living cell, where, it started working. A workin model of a synthetic gene.

Leon Lederman and others, 1976, U.S.—Discovery of particle with charm-confirmatio of the concept.

G. S. Hurst and others, 1977, U.S.—Dete tion of single atoms.

P. Chambon and others, 1978, France—Discovery that large portions of the DNA eukaryotic cells have no apparent functio

Supreme Court of U.S.A., 1980, U.S.—d cides in favour of granting the first patent f inventing a life-form (a bacterium in this cas to Ananda Chakarborty.

NASA, 1981, U.S.—Maiden voyage of t reusable Space Shuttle.

Nippon Electric Company, 1982, Japan—Development of a "read-only memory" (RO computer microchip with the capacity storing one million bits of memory.

P. Armbruster and G. Muncenberg, 1982, Germany—Creation of Element 109, t heaviest so far.

NASA, 1983, U.S.—Pioneer 10, launched 1972, becomes the first man-made object leave the solar system.

INVENTIONS

Scientific inventions and discoveries are important because they lead to the creation of mechanisms and artifacts which improve or easen our living conditions. However, there is often a long time lag before the inventions are transformed into working utilities.

Reviewing some 46 discoveries between 1900 and 1950, *A History of Technology* edited by Trevor I. William points out that the longest intervals – 50 to 60 years – were taken up by the flourescent lamp and the cotton picker and the shortest – one year – by Freon refrigerants

Inventions and discoveries come about sometimes by accident but mostly by design. Roentgen discovered X-ray by accident in 1895 but the Curies laboriously pursued the radium and discovered it eventually in 1898. Most of the discoveries in the 20th century were the results of purposeful investigations and experiments, though some like penicillin were discovered accidentally.

Accidental discoveries are, in fact, few a far between but even then only a scientist unusual acumen can identify it as a discove in the first instance. Others might have notic the same thing before to no purpose. T classic instance is the Archimedes Princip Thousands of people would have noticed t when they got into a full tub some water flo out. But Archimedes, alone among t thousands, could see a principle in it.

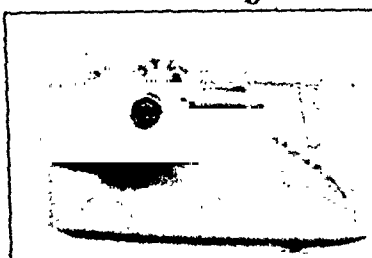
Many inventions have been made under t compulsive necessities of war. The Na developed rocketry and ballistic missiles destroy England America made the at bomb to crush Japan. The Allies develop Radar and Sonar to protect themselves.

All these inventions have turned out to quite beneficial in peacetime. Rocketry a missiles opened the way for space explorati and the epochal landing of men on the Mo Atomic power is now being harnessed

peace-time uses. Radar and Sonar have been helpful in a number of ways. Sonar, for instance, has made commercial fisheries safer and more productive.

Invention	*Date*	*Inventor*	*Country*
Adding Machine	1623	Wilhelm Schickard	Germany
Aeroplane	1903	Orville & Wilbur Wright	U.S.A.
Airship (non-rigid)	1852	Henri Giffard	France
" (rigid)	1900	G. F. von Zeppelin	Germany
Bakelite	1907	Leo H. Baekeland	Belgium
Balloon	1783	Jacques & Joseph Montgolfier	France
Ball-Point Pen	1888	John J. Loud	U.S.A.
Barometer	1644	Evangelista Torricelli	Italy
Battery (Electric)	1800	Alessandro Volta	Italy
Bicycle	1839-40	Kirkpatrick Macmillan	Britain
Bicycle Tyres (pneumatic)	1888	John Boyd Dunlop	Britain
Bifocal Lens	1780	Benjamin Franklin	U.S.A.
Bunsen Burner	1855	R. Willhelm von Bunsen	Germany
Burglar Alarm	1858	Edwin T. Holmes	U.S.A.
Car (steam)	c. 1769	Nicolas Cugnot	France
" (Petrol)	1888	Karl Benz	Germany
Carburettor	1876	Gottlieb Daimler	Germany
Carpet Sweeper	1876	Melville R. Bissell	U.S.A.
Cash Register	1879	James Ritty	U.S.A.
Cellophane	1908	Dr. J. Brandenberger	Switzerland
Celluloid	1861	Alexander Parkes	Britain
Cement (Portland)	1824	Joseph Aspdin	Britain
Chronometer	1735	John Harrison	Britain
Cinema	1895	Nicolas & Jean Lumiere	France
Clock (mechanical)	1725	I-Hsing & Liang Ling-Tsan	China
" (Pendulum)	1656	Christian Huygens	Netherlands
Copper working	c. 4500 B.C.	Earliest smelting site	
Dental Plate	1817	Anthony A. Plantson	U.S.A.
" (Rubber)	1855	Charles Goodyear	U.S.A.
Diesel Engine	1895	Rudolf Diesel	Germany
Disc Brake	1902	Dr. F. Lanchester	Britain
Dynamo	1832	Hypolite Pixii	France
Electric Blanket	1883	Exhibited Vienna Exhibition	
Electric Flat Iron	1882	H. W. Seeley	U.S.A.
Electric Lamp	1879	Thomas Alva Edison	U.S.A.
Electric Motor (DC)	1873	Zenobe Gramme	Belgium
" (AC)	1888	Nikola Tesla	U.S.A.
Electro-Magnet	1824	William Sturgeon	Britain
Electronic Computer	1824	Dr. Alan M. Turing	Britain
Film (moving outlines)	1885	Louis Prince	France
" (talking)	1922	J. Engl, J. Mussolle & H. Vogt	Germany
" (musical sound)	1923	Dr. Lee de Forest	U.S.A.
Fountain Pen	1884	Lewis E. Waterman	U.S.A.
Galvanometer	1834	Andre-Marie Ampere	France
Gas Lighting	1792	William Murdock	Britain
Glass (stained)	c. 1080	Augsburg	Germany
Glassware	c. 1500 B.C.	Egypt and Mesopotamia	
Glider	1853	Sir George Cayley	Britain
Gramophone	1878	Thomas Alva Edison	U.S.A.

Age of Wheelwriters



The integrated circuit technology, commonly called the silicon chip, has revolutionised the design of typewriters.

An international concern has perfected the designs of typewriters in which microprocessors are incorporated. These new devices, called **quietwriters and wheelwriters** *are expected to type fast large amounts of textual matter and effect a large economy in time, material and man-power.*

In an ordinary typewriter, the alphabet and symbols are arranged in a semi-circular array of levers. In the electronic typewriters, the characters are on a wheel which is fixed.

In the new design, the characters are arranged along the spokes of a wheel over the paper over which typing is to be made. Another motor spins the wheel so that the right spoke position is placed over the paper corresponding to the key pressed.

Two other motors control the height of the typing ribbon and its feed rate. Because of the silicon chip technology, the entire equipment is compact and occupies the space of a small box.

One common difference between the printed and typed texts is the clearly visible closed packing of letters in a word in the printed version. For example, both thin letters like I or J and wide letters like W or M occupy exactly same space in the typed text. This defect has been removed in the new design, because the motors that control the movement of the ribbon and paper take instructions from the silicon chip incorporated in the design. Thus the output is indistinguishable from the printed matter.

In an ordinary typewriter, the force with which a letter is pressed on the paper depends on the force applied by the finger on the key. In electric and electronic typewriters, a uniform force is applied on the paper, irrespective of the force applied by the finger on the key.

But in the new design, there is a graded application of pressure with a view to presenting a pleasing output. For example, a comma will be brought out lightly compared to other letters of the alphabet. If desired, letters can be typed with sufficient force so as to offer a good profile to attract the attention of readers.

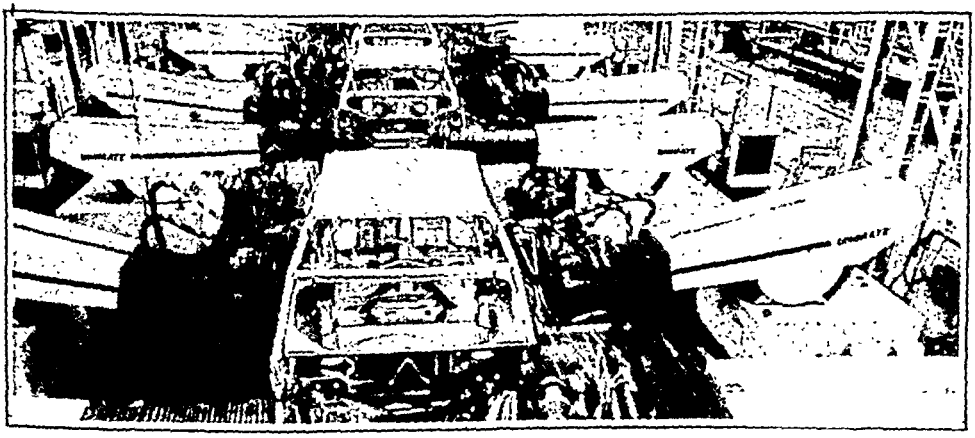
The design has a memory of about 7000 common words and even if a typist makes a mistake in spelling, it gets automatically corrected by a comparison with the memory-stored spelling.

More words can be added as desired by the user to the spelling-checker. Other facilities like recall of oft-repeated passages now available in word-processors are also incorporated in the new design.

A valuable accessory to this new typewriter is a printer converter. This enables the typed version to be brought out in printed form so that it can be reproduced by off-set printing processes. Thus publishing houses will be rid of the botheration of composing the typed version for final printing.

Gyro-compass	1911	Elmer A. Sperry	U.S.A.
Helicopter	1924	Etienne Oehmichen	France
Hovercraft	1955	C. S. Cockerell	Britain
Iron Working (Carburized)	c. 1200 B.C.	Cyprus & N. Palestine	
Jet Engine	1937	Sir Frank Whittle	Britain
Laser	1960	Dr. Charles H. Townes	U.S.A.
Launderette	1934	J. F. Cantrell	U.S.A.
Lift (Mechanical)	1852	Elisha G. Otis	U.S.A.
Lightning Conductor	1752	Benjamin Franklin	U.S.A.
Linoleum	1860	Frederick Walton	Britain
Locomotive	1804	Richard Trevithick	Britain
Loom, power	1785	E. Cartwright	Britain
Loudspeaker	1900	Horace Short	Britain
Machine Gun	1718	James Puckle	Britain
Maps	c. 3800 B.C.	Sumeria (clay tablets of river Euphrates)	
Margarine	1869	Hippolyte M. Mouries	France
Match, safety	1826	John Walker	Britain
Microphone	1876	Alexander Graham Bell	U.S.A.

Robot the Killer



Robots in an automobile assembly line: some of them go berserk

Manufacturers in Japan are happy that robots are such a help in boosting industrial production and profitability, with virtually none of the usual "labour problems" managements face.

Japan employs some 200,000 robots which is almost 60 per cent of the world robot 'population'. But recent studies reveal that this new technological asset is also apt to go berserk occasionally under the influence of what researchers call "stray electromagnetic radiation", sometimes from other robots nearby.

The Japaness Labour ministry says that during the past eight years, some ten workers were killed by the unexpected movement of automated equipment on assembly lines.

The *Asahi Shimbun*, Japan's second-largest daily reported that the study of robot induced accidents by the Labour ministry established that the danger from sudden erratic operation of robotised machines triggered by stray signals emitted by other equipment caused the fatal accidents

Micro-processor	1971	Robert Noyce & Gordon Moore	U.S.A.
Microscope	1590	Z. Janssen	Netherla
Motor Cycle	1885	G. Daimler of Cannstatt	Germany
Neon Lamp	1910	Georges Claude	France
Night Club	1843		France
Nylon	1937	Dr. Wallace H. Carothers	U.S.A.
Paper	A.D. 105		China
Parachute	1797	A. J. Garnerin	France
Parchment	c. 1300 B.C.		Egypt
Parking Meter	1935	Carlton C. Magee	U.S.A.
Pasteurization	1867	Louis Pasteur	France
Photography (on metal)	1826	J. N. Niepce	France
" (on paper)	1835	W. H. Fox Talbot	Britain
" (on film)	1888	John Carbutt	U.S.A.
Porcelain	851	Earliest report from China	
Potter's Wheel	c. 6500 B.C.		Asia Minor
Printing Press	c. 1455	Johann Gutenberg	German
Printing (rotary)	1846	Richard Hoe	U.S.A.
Propeller (ship)	1837	Francis Smith	Britain
Pyramid	c. 2685 B.C.		Egypt
Radar	1922	A. H. Taylor & Leo C. Young	U.S.A.
Radio Telegraphy	1864	Dr. Mahlon Loomis	U.S.A.
" (Transatlantic)	1901	G. Marconi	Italy
Rayon	1883	Sir Joseph Swan	Britain
Razor (electric)	1931	Col. Jacob Schick	U.S.A.
" (safety)	1895	King C. Gillette	U.S.A.
Record (long-playing)	1948	Dr. Peter Goldmark	U.S.A.
Refrigerator	1850	James Harrison & Alexander Catlin	U.S.A.
Rubber (latex foam)	1928	Dunlop Rubber Co.	Britain
" (tyres)	1846	Thomas Hancock	Britain
" (vulcanised)	1841	Charles Goodyear	U.S.A.
" (waterproof)	1823	Charles Macintosh	Britain

Plane as cheap As a Car

A group and Australian engineers have developed a new type of aircraft made of plastic, representing a radical change in the way airplanes are usually made.

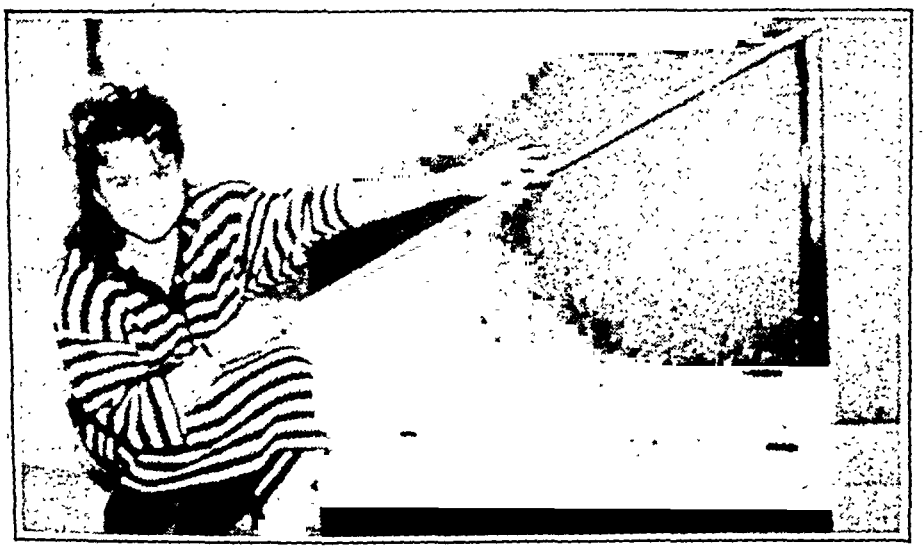
According to a report from Perth, the airplane, called the Eagle X, is the first aircraft in the world to have its body and wings made entirely from high technology composite plastic — a mixture of carbon fibre.

The Eagle X will not have to be assembled by hundreds of skilled aviation technicians. It will simply be moulded by machine in one piece.

Unlike a conventional aircraft, the Ea X has no tail wing. Instead, it is fitted wi forward wing. If the plane loses speed is in danger of stalling, the forward w will automatically pull the aircraft back i a safe position.

The new aircraft can be mastered in time than most people take to learn drive a motor car.

The price of the new aircraft is ab that of an ordinary car. Australia decided to mass produce the aircraf Perth for overseas distribution — Xinl



Extra-large t.v. set marketed by West Germany

Sharper Television

In a move to thwart future expansion of the already sizeable Japanese share of the electronic goods market 30 European manufacturers have formed a rare consortium. Companies engaged in the production of television equipment from Britain, West Germany, France, the Netherlands, among others, have jointly developed a new transmission technology which rivals the one a Japanese giant is trying to sell in Europe. The project, named *Eureka*, is also backed by broadcasting networks in Europe as well as the U.S.

Existing TV transmission in Europe, as in India, is based on 625 horizontal lines or 120,000 individual picture elements — pixels — to build up a picture. Twenty-five such pictures are flashed every second. The ratio of the width to height of the screen is 4:3. This limits the clarity and sharpness of the picture.

To improve upon these qualities and project a high definition picture the Japanese have launched a 1,125 lines system that uses 30 pictures per second. In response, the Europeans have come up with 1,250 lines, 50 pictures a second system using a screen with 16:9 ratio. It has 480,000 pixels, four times the present number.

What makes this system more attractive than the Japanese, is not that it is indigenous but that it is compatible with the existing sets. The Japanese system would have required newly developed sets which were to follow. They were thus caught in their own trap.

Rubik Cube	1975	Prof. Erno Rubik	Hungary
Safety Pin	1849	Walter Hunt	U.S.A.
Scotch Tape	1930	Richard Drew	U.S.A.
Self-starter	1911	Charles F. Kettering	U.S.A.
Sewing Machine	1829	Barthelemy Thimmonnier	France
Ship (sea-going)	c. 7250 B.C.		Grecian ships
„ (steam)	1775	J. C. Perier	France
„ (turbine)	1894	Hon. Sir C. Parsons	Britain

Silk Manufacture	c. 50 B.C.		China
Skyscraper	1882	W. Le Baron Jenny	U.S.A.
Slide Rule	1621	William Oughtred	Britain
Spectacles (convex)	1289		Venice Italy
Spinning Frame	1769	Sir Richard Arkwright	Britain
Spinning Jenny	1764	James Hargreaves	Britain
Spinning Mule	1779	Samuel Crompton	Britain
Steam Engine	1698	Thomas Savery	Britain
Steam Engine (piston)	1712	Thomas Newcomen	Britain
Steam Engine (condenser)	1765	James Watt	Britain
Steel Production	1855	Henry Bessemer	Britain
Steel (stainless)	1913	Harry Brearley	Britain
Submarine	1776	David Bushnell	U.S.A.
Tank	1914	Sir Ernest Swington	Britain
Telegraph	1787	M Lammond	France
Telegraph Code	1837	Samuel F. B. Morse	U.S.A.
Telephone	1849	Antonio Meucci	Italy
"	1876	Alexander Graham Bell	U.S.A.
Telescope	1608	Hans Lippershey	Netherlands
Television (mechanical)	1926	John Logie Baird	Britain
" (electronic)	1927	P. T. Farnsworth	U.S.A.
Terylene	1941	J. R. Whinfield, J. T. Dickson	Britain
Thermometer	1593	Galileo Galilei	Italy
Transformer	1831	Michael Faraday	Britain
Transistor	1948	Bardeen, Shockley & Brattain	U.S.A.
Typewriter	1808	Pellegrine Tarri	Italy
Washing Machine (elec.)	1907	Hurley Machine Co.	U.S.A.
Watch	1462	Bartholomew Manfredi	Italy
Water Closet	1589	Designed by J. Harrington	Britain
Welder (electric)	1877	Elisha Thomson	U.S.A.
Wheel	c. 3300 B.C.	Sumerian civilization	
Windmill	c. 600	Persian corn grinding	
Writing	c. 3500 B.C.	Sumerian civilization	
X-ray	1895	Wilhelm K. Roentgen	Germany
Zip Fastener	1891	W. L. Judson	U.S.A.

(Source: **Guinnes Book of Answers**)

ELEMENTS

An element may be defined as "a substance which cannot be broken down to yield simpler substances by ordinary chemical methods" The elements are the basic substances from which all others are built up by chemical combinations

Elements found in nature or naturally occurring elements number 92, ranging from Hydrogen, the lightest element (Element 1) to Uranium, (Element 92) the heaviest element. One element Plutonium (Element 94) is found in minute quantities in the ores of Uranium and Thorium

All elements heavier than Uranium are man-made and are called *Transuranics*. They are produced either in nuclear reactors or accelerators or isolated from the debris of hydrogen bomb explosions. The first of such elements is Neptunium (Element 93) discovered in 1940. The latest is Element 109 discovered in 1982 by the Institute for Heavy Ion Research (GSI) at Darmstadt (West Germany) * Elements up to 103 (1961) are included in the table given below.

* Element 106 has not so far been discovered

All man-made elements decay quickly. Element 109, for instance, survives as such for only five-thousandths of a second and turns into Element 107 which after a short time emits an alpha particle and becomes Element 105. Next one of the protons in the nucleus is transformed into a neutron, emitting a positive electron (Positron) in the process and becomes Element 104. This element splits into two and the process of decay is halted.

Elements are numbered according to the number of protons in their atomic nuclei. But the atomic nucleus also contains neutrons which add to the mass of the atom and can affect its stability and radio activity. The atoms of the same element may contain different numbers of neutrons. These are called their isotopes. It is calculated that about 8000 isotopes may exist for the known atoms. Actually only 2000 are known today.

Elements and Symbols		Atomic Number	Atomic Weight	Discoverer	Date
Actinium	Ac	89	227.0	A. Debierne	1899
Aluminium	Al	13	27.0	F. Wohler	1827
Americium	Am	95	243	G. Seaborg & others	1944
Antimony	Sb	51	121.8	B. Valentine	1604
Argon	A	18	39.9	W. Ramsay and J. Rayleigh	1894
Arsenic	As	33	74.9	A. Magnus	(?) 1250
Astatine	At	85	210	E. Segre & others	1940
Barium	Ba	56	137.3	H. Davy	1808
Berkelium	Bk	97	249	S. Thompson & others	1949
Beryllium	Be	4	9.0	N. Vauquelin	1798
Bismuth	Bi	83	209.0	C. Geoffrey the Younger	1953
Boron	B	5	10.8	H. Davy	1808
Bromine	Br	35	79.9	A. Balard	1826
Cadmium	Cd	48	112.4	F. Stromeyer	1817
Calcium	Ca	20	40.1	H. Davy	1808
Californium	Cf	98	251	S. Thompson & others	1950
Carbon	C	6	12.0	....	Prehistoric
Cerium	Ce	58*	140.1	J. Berzelius & Wd' Hislinger	1803
Caesium	Cs	55	132.9	R. Bunsen & G. Kirchhoff	1860
Chlorine	Cl	17	35.5	K. Scheele	1774
Chromium	Cr	24	52.0	N. Vauquelin	1797
Cobalt	Co	27	58.9	G. Brandt	c. 1735
Copper	Cu	29	63.5	....	Prehistoric
Curium	Cm	96	248	G. Seaborg & others	1944
Dysprosium	Dy	66*	162.5	L. de Boisbaudran	1886
Einsteinium	E	99	254	A. Ghiorso & others	1953
Erbium	Er	68*	167.3	C. Mosander	1839
Europium	Eu	63*	152.0	E. Demarcay	1896
Fermium	Fm	100	253	A. Ghiorso & others	1952
Fluorine	F	9	19.0	H. Moissan	1886
Francium	Fr	87	223	M. Perey	1939
Gadolinium	Gd	64*	157.3	J. C. de Marignac	1880
Gallium	Ga	31	69.7	L. de Boisbaudran	1875
Germanium	Ge	32	72.6	C. Winkler	1886
Gold	Au	79	197.0	....	
Hafnium	Hf	72	178.5	D. Coster & G. De Hevesy	
Helium	He	2	4.0	J. C. P. Janssen & N. Lockyer	
Holmium	Ho	67*	164.9	J. Soret & M. Delafontai	
Hydrogen	H	1	1.0	H. Cavendish	
Indium	In	49	114.8	F. Reich & T. Pach	

Iodine	I	53	126.9	B. Courtois	1811
Iridium	Ir	77	192.2	S. Tennant	1803
Iron	Fe	26	55.9	....	Prehistoric
Krypton	Kr	36	83 8	W. Ramsay & M. Travers	1898
Lanthanum	La	57*	138.9	C. Mosanter	1839
Lawrencium	Lw	103	257.0	A. Ghiorso & others	1961
Lead	Pb	82	207.2	...	Prehistoric
Lithium	Li	3	6.9	A. Arfvedson	1817
Lutetium	Lu	71*	175.0	G. Urbain	1907
Magnesium	Mg	12	24.3	Recognized by J. Block	1755
Manganese	Mn	25	54.9	Recognized by K. Scheele	1774
Mendelevium	Mv	101	256	A. Ghiorso & others	1955
Mercury	Hg	80	200.6	....	Prehistoric
Molybdenum	Mo	42	95.9	K. Scheele	1778
Neodymium	Nd	60*	144.2	C. Von Welsbach	1885
Neon	Ne	10	20.2	W. Ramsay & M. Travers	1898
Neptunium	Np	93	237	E. McMillan & P. Abelson	1940
Nickel	Ni	28	58.7	A. Cronstedt	1751
Niobium (Columbium)	Nb	41	92 9	C. Hatchett	1801
Nitrogen	N	7	14.0	D Rutherford	1772
Nobelium	No	102	254	Fields & others	1951
Osmium	Os	76	190.2	S. Tennant	1803
Oxygen	O	8	16 0	J Priestley	1774
Palladium	Pd	46	106 4	W. Wollasten	1803
Phosphorus	P	15	31 0	H. Brand	1669
Platinum	Pt	78	195 1	D de Ulloa	1735
Plutonium	Pu	94	242	G Seaborg & others	1940
Polonium	Po	84	210.0	P. & M Curie	1898
Potassium	K	19	39.1	H. Davy	1807
Praseodymium	Pr	59*	140.9	C. von Welsbach	1885
Promethium	Pm	61*	147	J. Marnsky & others	1947
Protactinium	Pa	91	231.0	F. Soddy & others	1917
Radium	Ra	88	226.1	P. & M. Curie	1898
Radon	Rn	86	222.0	Rutherford (thoron isotope) E. Dorn (radon isotope)	1899 1900
Rhenium	Re	75	186.2	E. Noddack & others	1925
Rhodium	Rh	45	102 9	W. Wollaston	1803
Rubidium	Rb	37	85.5	R. Bunsen & G. Kirchhoff	1861
Ruthenium	Ru	44	101.1	K. Claus (or Klaus)	1844
Samarium	Sm	62*	150 4	L de Boisbaudran	1879
Scandium	Sc	21	45.0	L. Nilson	1879
Selenium	Se	34	79.0	J. Berzelium	1817
Silicon	Si	14	28 1	J. Berzelium	1824
Silver	Ag	47	107.9	...	Prehistoric
Sodium	Na	11	23 0	H. Davy	1807
Strontium	Sr	38	87.6	H. Davy	1808
Sulphur	S	16	32 1	....	Prehistoric
Tantalum	Ta	73	181.0	A. Ekeberg	1802
Technetium	Tc	43	99	E. Segre & C. Perrier	1937
Tellurium	Te	52	127.6	M. von Reichenstein	1782
Terbium	Tb	65*	158.9	C. Mosander	1843
Thallium	Tl	81	204 4	W. Crookes	1861
Thorium	Th	90	232.0	J. Berzelium	1828

Thulium	Tm	69*	168.9	P. Cleve	1879
Tin	Sn	50	118.7	....	Prehistoric
Titanium	Ti	22	47.9	W. George	1791
Tungsten (Wolfram)	W	74	183.9	G. & F.d'Ethuyar	1783
Uranium	U	92	238.0	E. M. Peligot	1841
Vanadium	V	23	51.0	A. Delrio	1801
Xenon	Xe	54	131.3	W. Ramsay & M. Travers	1898
Ytterbium	Yb	70*	173.0	C. Marignac	1878
Yttrium	Y	39	88.9	J. Gabolin	1794
Zinc	Zn	30	65.4	....	Prehistoric
Zirconium	Zr	40	91.2	M. Klaproth	1789

* Rare Earths: Fifteen elements from atomic number 57 to 71 are collectively known as Rare Earths because they are remarkably similar in their chemical behaviour.

THE WORLD OF SOUND

Radio Telescopes have opened a new world to the astronomer – a world of sound, not of sight. The two worlds are fantastically different. The Milky Way, for example, is a river of light to the eyes but it is a hissing mass to the ears.

Radio Telescopes, in fact, help us to listen in to stars or galaxies that lie far beyond the ken of the world's largest optical telescopes. They also enable us to study astral phenomena which are within the range of our optical telescopes but which are not visible owing to the haze of cosmic dust. Thus it is that we have managed to collect what little we know about the galactic centre of the Milky Way.

Sound is produced by the vibrations of an object or mechanism and transmitted in the form of waves – alternating increase and decrease in pressures. It radiates outward through a material medium of molecules, more or less like the ripples spreading out on water after some heavy object has been thrown into it.

Two properties of sound are important, namely the *pitch* or *frequency* and intensity or loudness. The pitch or frequency refers to the rate of vibration of the sound and is measured in Hertz (Hz) units. The frequency of sound is determined by the number of times the vibrating waves undulate per second. The slower the cycle the lower the pitch. The pitch becomes higher as the cycles increase in number or which is the same thing, as frequencies increase.

The intensity or loudness is measured in decibels. A decibel (db) (one-tenth of a *bel*) is a physical unit based on the weakest sound that can be detected by the human ear. It is named after Alexander Graham Bell, the inventor of the telephone. The decibel scale is logarithmic, that is, an increase of 10 db means 10 times as much, an increase of 20 db means 100 times and 30 db 1000 times etc. A light whisper may be about 10 db, a quiet conversation around 20 db, and normal talk 30 db. In comparison the electrically amplified beat music in a disco is a billion times louder than the sound of a whisper at 10 db. (see Box *Noise Scale).*

The human ear cannot generally hear sounds of frequencies higher than 20,000 vibrations per second or in modern International Units 20,000 Hz. Sounds of frequencies higher than 20,000 Hz which are inaudible are called *ultra-sonic.* Bats produce very high sound when they fly but they are at ultra-sonic frequencies from 20,000 to 100,000 Hz. So we cannot hear them. Ultra-sonic waves are an important tool of research in physics. There are also many applied uses for ultra-sonic waves, like sub-marine echo sounding, detection of flaws in casting, drilling glasses and ceramics, emulsification etc.

The speed of sound varies according to the nature of the carrier media. When we speak of the speed of sound, we ordinarily mean the speed at which sound travels in air at sea level. This is around 1088 feet per second. In water,

sound travels about 5 times faster than in air. In iron and steel it is even faster, about 3 times faster than the speed in water. Speeds of sound through some selected media are indicated below: *ice-cold water*–4938 ft. per second, *brick*–11,620 ft., *granite*– 1296 ft., *hardwood*–12,620 ft. and *glass*–16,410 to 19,690 feet per second.

Supersonic speed is speed greater than that of sound in air at sea level, that is to say, around 1216 km per hour. Supersonic speed is measured in *Mach*. This unit was worked out by the Czech-born German physicist *Ernst Mach* and therefore named after him. Mach is the ratio of the speed of flight to the speed of sound, under the same conditions of pressure and density. When a plane moves at the speed of sound, it is Mach 1. When a plane moves at twice the speed of sound (supersonic), it is Mach 2 When it is less than the speed of sound it is *sub-sonic* and therefore less than Mach 1. At half the speed of sound it is Mach ½.

Sound barrier is the point at which the speed of flight equals the speed of sound. When a plane flies faster than sound, it is said to have crossed the sound barrier. When the sound barrier is passed, the speed of the aircraft produces shock waves in the atmosphere, somewhat like the bow waves produced by fast-moving ships. The shock waves in the atmosphere produce booms like thunder claps. These are called *sonic booms*. Thhe sonic booms jar on the ears of the resident population in the areas over which the plane flies but they do not trouble the passengers or the crew because the plane goes faster than the shock waves.

The human ear can safely respond to pressures up to 120 db. Any intensity higher than this is harmful and can damage the ear. This will be clear, if we examine the functioning of the ear.

The ear consists of three parts, the *outer ear*, the *middle ear* and the *inner ear*. The outer ear (*auricle*) collects the sound stimuli. These are carried through a canal to the middle ear. The canal is not straight and is the widest where it meets the outer wall of the middle ear, the ear drum. The sweat glands of the canal are modified to secrete a kind of wax–the ear wax. The middle ear is a cavity in the temporal bone which is a part of the skull. The *tympanic membrane* or the ear drum receives the sound vibrations from the outer ear.

Three minute pieces of bone bridge the cavity, the *hammer*, the *anvil* and the *stirrup* (so called from their shapes). These transmit the vibrations received by the middle ear to the inner ear. The inner ear is a small but elaborate structure which houses two distinct organs–one for hearing and the other for balance. The organ for hearing, called the *cochlea* is a snail-shaped container which transmits sound vibrations as nerve impulses to the brain. It is the brain that initiates the entire system of varied bodily responses to sound.

Thus, the brain activates the pituitary gland which in turn causes the thyroid and adrenal glands to excrete hormones. It stimulates the sympathetic nervous system which influences the heart, the stomach, the pupil, blood vessels and motor nerves which control muscle reac-

Noise Scale

1. *Breathing*	10 db	14. *Heavy truck traffic*	90-100 db
2. *Wind in the trees*	20 db	15. *Motor Cycle*	105 db
3 *Quiet Conversation*	20-30 db	16. *Pneumatic drill*	110 db
4 *Ticking Clock*	30 db	17. *Thunder storm*	110 db
5. *House in a quiet street*	35 db	18. *Beat Music (electrically amplified)*	120 db
6 *Radio Music*	50-60 db	19. *Aircraft noise*	90-120 db
7. *Loud conversation*	60 db	20. *Jet takeoff (at 100 m distance)*	120 db
8 *Office noise*	60 db	21. *Jet engine (at 25 m distance)*	140 db
9 *Children playing*	60-80 db	22. *Space Vehicle launch (from a short distance)*	140-170 db
10 *lawn mower*	60-80 db		
11. *Vacuum cleaner*	80 db		
12 *Traffic Noise*	60-90 db		
13 *Sports car*	80-95 db		

tions. These and other reactions determine our bodily responses to sound.

A common misconception is that the ear gets accustomed to excessive noise if it is heard *continually*. Actually what happens is that the ear progressively loses its sensitivity and ability to transmit sound vibrations to the brain resulting in various degrees of deafness. Such disabilities become markedly noticeable in old age.

Sound is either music or noise-so goes an old saying. What is implied by this distinction is that whatever is pleasant to the ear is music while all that is unpleasant is noise. Such phrases as 'grating on the ears' or 'jarring on the nerves' express the discomfort we feel on hearing unpleasant sounds. It is such unpleasant impacts of sound that are collectively described as *noise pollution*.

All cities and towns labour under noise pollution in varying degrees. The worst offenders are the big cities, whose noisy traffic itself is a potent menace to hearing. A study recently conducted in West Germany showed that 2.5 million people (out of nearly 63 million) live in places where the noise level is high. This is a small percentage, as percentages go, but it indicates only those who are exposed to the greatest danger.

It does not mean that others are unaffected by noise pollution. Even noises at much lower levels can be harmful, especially during sleep and recuperation. Anything that disturbs repose or sleep is detrimental to health in the long run. Barking dogs and fighting cats can interfere with sleep whether in the town or in the country.

During work hours noise is definitely a deterrent to concentration. From 50 db onwards noise can interfere with normal voice communication. At 70 db even normal conversation becomes impossible. However, some people have become so accustomed to noise that they cannot concentrate on their work in the absence of familiar sounds like the radio. May be, these people do turn out better work in a noisy environment but they are heaping up trouble for the future.

The constant exposure to noise will steadily deteriorate the delicate parts of the middle ear, which would fail more and more in transmitting sound impulses to the inner ear, ultimately resulting in inefficient bodily responses to sound.

A study jointly conducted by the Indian Council of Medical Research and the Department of Science and Technology during the period from 1977 to 1982 showed that more than 10% of the urban population and about 7% of the rural population in India suffer from mild to severe hearing impairment. The fact that a greater percentage of the urban population – almost one and a half times of its rural counterpart – suffer from defective hearing clearly shows the dangers posed by higher noise pollution levels.

CRYOGENICS

Cryogenics is one of the youngest sciences, having come into existence only in the 20th century. The name 'Cryogenics' is derived from a Greek word meaning, 'productive of cold'. Cryogenics deals with the production of 'very low' temperatures and the study of their physical and technological consequences.

'Very low' temperatures are generally taken to mean temperatures below −150°C and thereabouts. Absolute Zero clearly belongs to the domain of cryogenics. It is apparently unattainable on Earth.

The lowest temperature that we have reached or rather produced on Earth is only one-millionth of a degree above Absolute Zero. Scientists the world over are continuously working at reaching at least one-hundredth of the degree Absolute. This is a world far below the freezing point as we understand it. In this sub-freezing world strange things happen.

All known elements freeze solid, except helium which remains liquid. Rubber becomes so brittle that it shatters like glass. Lead rings like a bell when struck. Air freezes into a solid block. All these happen not at the point of Absolute Zero but within about 10 points above it.

Helium, the second lightest of all gases (the lightest is hydrogen), has proved to be a very slippery and recalcitrant [illegible] enough, this gas was [illegible]

Temperature Scales

Three systems of temperature measurement are now in use – the Celsius scale, the Fahrenheit scale and the Kelvin scale. The Celsius scale was worked out by the Swedish physicist and astronomer Anders Celsius in 1742.*

It appears to have been revised by another Swedish physicist J. P. Christen. This scale was originally known as the Centrigrade. It was re-named Celsius scale in honour of its inventor Celsius. The Fahrenheit scale was devised by the German-born physicist Gabriel Daniel Fahrenheit (1686-1736) around 1715. The Kelvin scale was pioneered by the British physicist William Thompson Kelvin (1824-1907), later Lord Kelvin.

The International System of Units recognises the Celsius and Kelvin scales. The Kelvin scale is derived from thermo-dynamics and is of special importance to scientists. The scale generally used by all is the Celsius. The unit of temperature adopted by the SI is based on the Triple Point of Water, that is, the temperature at which solid, liquid, and gaseous water are all in equilibrium. The triple point has been defined as 273.16K† (Kelvin) which is equivalent to 0.01°C. Zero degree Kelvin is the Absolute Zero. This corresponds to −273.16° Celsius and −459.69° Fahrenheit.

Absolute Zero is a thermodynamic concept, that is to say, it is based on heat energy. It is the point at which molecules have no heat energy. At this point all motion stops. Even atomic particles slow down.

Conversion Formula

Celsius to Kelvin	$K=C+273.16$
Fahrenheit to Celsius	$C=F-32\times 5/9$
Celsius to Fahrenheit	$F=C\times 9/5+32$

* In 1742 Anne Reaumur devised an alcohol thermometer with a graduated scale (the 80°, 0° being the freezing point of water and 80° the boiling point. It was popular for a time but gradually went out of use.

† In 1967 the notation degree Kelvin (°K) was replaced by kelvin (K).

Sun's atmosphere* by Sir Norman Lockyer, the British astronomer, through the spectroscope. In 1895 Sir William Ramsay found it on Earth in the uranium ore – *Clevite*. Later it was established that helium is found in all radioactive minerals and that it is released on Earth by the radioactive decay of these minerals. Ordinary air contains 1 part of helium in 200,000 parts of air.

Helium has several usable advantages. It is inert and noninflammable. It is used for inflating airships. It resisted all attempts at liquefaction till 1908, when it succumbed to Dr. Kamerlingh-Onnes at Leyden. Thus, it is the last gas to be liquefied. Liquid helium has many remarkable properties which are not wholly understood as yet. It is indispensable in cryogenics as a medium to cool other substances to temperatures near the Absolute Zero. It is the only element that we know of which refuses to solidify even in the dangerous vicinity of Absolute Zero.

One of the surprises at low temperatures is *Superfluidity*. If liquid helium is poured into a flask, separated into two chambers by a partition, it seeps through the solid partition to become level in both chambers.

Another surprising phenomenon is *superconductivity*. Superconductivity was first discovered at the University of Leyden in 1911 by Dr. H. Kamerlingh-Onnes, who was awarded the Nobel Prize in 1913 for his earlier work of liquefying helium. However, it was only in 1957 that the theory caught up with experiment. Nobel Prize winner Dr. John Bardeen (1956) of the University of Illinois and his associates presented the first theory of superconductivity in 1957. The theory is based on quantum mechanics and is highly technical. Some 300 materials – 25 elements and the rest alloys or compounds – are, now known to be superconductors.

The application of superconductivity (that is, the total disappearance of electrical resistance) to electric power engineering promises to increase capacity, reduce cost and improve reliability of power grids. A transmission line made of superconducting niobium and roughly the diameter of the arm, can carry as much power as the peak load now being used in the whole of the United States.

Cryogenics has thousands of other applica-

* The name 'helium' is derived from *helios* meaning the 'Sun'.

tions. Rapid freezing by liquid nitrogen, for instance, confers improved taste, texture, aroma, nutritive value and appearance to food articles besides reducing degradation by bacteriological, enzymatic, oxidative and chemical reactions.

Cryogenic freezing systems, being more economical than conventional systems, can be very handy for refrigerated transportation of marine food, fruits, vegetables and other perishable foods.

In medicine, human blood used for transfusion in hospitals cannot normally be preserved beyond three weeks. A new blood freezing technique recently developed using liquid nitrogen can now be used for storing blood for months or even years. Cryogenics can also be used to store marrow cells in marrow banks of hospitals.

Cryosurgery has several advantages over normal surgery. It can be used to treat Parkinson's disease and other disorders of involuntary movement. Tumours can be frozen and removed with little loss of blood. Bloodless cryosurgery can also be used in tonsilectomies and in the removal of cataracts of the eyes.

Vast quantities of natural gases are burnt every year for want of economical methods for liquefying them in the country. The gases burnt at the refineries or oil fields can be liquefied by cryogenic methods and transported to the remote corners of the country for use by those who do not have the advantage of city gas lines. Liquid methane can reduce the cost of supersonic flights by about one-third.

Work on applications of cryogenics is at present going on in nearly a dozen centres in India. They include the National Physical Laboratory, New Delhi, the Tata Institute of Fundamental Research, Bombay, the Indian Institute of Science, Bangalore, the Indian Association for Cultivation of Sciences, Jadavpur, the Physics Department of Delhi University, the Solid State Physics Labortory, Delhi, and the Indian Institute of Technology, Kanpur. (See Special Feature: Superconductivity)

TIME SYSTEMS

The earliest instruments for measuring time included many devices like the Sun dial and the water clock which were used in Egypt. These instruments were crude. In the 2nd century BC, Ctesibius, a Greek engineer of Alexandria, re-designed the ancient Egyptian water clock and made it popular.

The improved water clock was the best of the ancient timepieces. During the Middle Ages mechanical clocks run by falling weights came into vogue. These were more convenient than the water clocks but no more accurate. Booth erred by as much as half an hour per day.

In 1884 the second – the lowest unit of time – was defined as 1/86400 of the time that the Earth took to complete one rotation on its own axis or 1/86400 of a day of 24 hours. This, of course, meant that the 24-hour day was made up of 86,400 seconds.

But the Earth wobbles as it rotates. This wobbling leads to fluctuations in the time of rotation. It was therefore decided in 1960 to abandon the period of rotation as the primary unit (that is, a day of 24 hours), and to adopt the period of revolution (of the Earth round the Sun) as the basis of calculations. The second was thus re-defined as 1/31,556,925.9747 of the time that the Earth took to complete one revolution round the Sun. A year of 365 days and odd, thus consisted of about 31.5 million seconds.

In 1967 the *General Conference on Weights & Measures* recognised the atomic second as determined by the *cesium* (caesium) *atom clock* as the unit of time under the International System of Units (SI). The atomic second is defined as the time taken by the cesium electron to complete 9,192,631,770 spins.

The definition is not as accurate as it looks because the cesium electron may sometimes take more spins and sometimes less spins than the defined norm. The deviation, however, is only a few spins either way, that is, a few spins more or less than 9192 million spins. This is insignificant.

The atomic clock has two specific advantages. It is not affected by the vagaries of the atmosphere nor by the fluctuations in the rotation of the Earth. The latter has become

Greenwich Mean Time

The following zones are **fast** *on Greenwich Time by the number of hours indicated in brackets:*

Fiji, New Zealand etc. (12 hrs.). New Caledonia, New Hebrides etc. (11). Queensland, Tasmania etc. (10). Japan, Korea etc. (9) China, Hongkong, Philippines etc. (8) Singapore (7½). Java, Thailand etc. (7), Burma, Cocos Keeling Islands (6½) Bangladesh (6) India, Sri Lanka, Andaman and Nicobar Islands (5½). Pakistan (5). Mauritius, Seychelles etc. (4). Iran (3½) Iraq, Ethiopia etc. (3). Turkey, Greece, Bulgaria etc. (2) Sweden, Norway, Denmark etc. (1).

The following areas are **slow** *on Greenwich Time by the number of hours indicated:*

Iceland, Madeira etc. (1) Azores, Cape Verde etc. (2). Greenland (excluding Scores by Sound and Thule) and Eastern Brazil (3). Newfoundland, Labrador, Dutch Guiana and Uruguay (3½). Canada (East of 68°W), Greenland (Thule area), Puerto Rico etc. (4). Canada (from 68°W. to 85°W.). Jamaica, Bahama, Bahama Is., Cuba, Haiti, Peru, Panama etc. (5). Canada (from 85°W to 102°W), Costa Rica, Salvador, Honduras, Guatemala, Nicaragua, Central parts of USA and parts of Mexico (6). Canada (from 102°W. to 120°W.), mountain States of USA and parts of Mexico (7). Canada (West of 120°W.), Alaska (south east), Western States of USA and parts of Mexico (8). Alaska (north of Cross Sound), Yukon, Christmas Is. (9). Alaska (from 141°W.), Hawaii etc. (10). Aleutian Is., Alaska (west coast), Samoa, Midway Is. (11).

important in recent years. For, it has been observed from 1970 onwards that the Earth is slowing down in rotation by nearly a second every year.

Since this error has been noticed, clocks all over the world are being corrected at the beginning of every year to conform to the atomic time. The atomic clock developed by the British National Physical Laboratory has achieved a very high degree of accuracy. It is accurate to one second in 300 years.

Since January 1972, a new standard of time called the *Co-ordinated Universal Time* (UTC) has also been maintained in Paris, the headquarters of the General Conference on Weights & Measures. This is not based on any single atomic clock but on the average of atomic clock readings from 18 timing centres around the world.

The UTC does not gain or lose more than one hundred millionth of a second per day. This has whittled down the infinitesmal error of the atomic clocks to the vanishing point. It is expected that the UTC will remain absolutely correct for a quarter million years.

The system of *Standard Time* was introduced to co-relate the time systems of various countries on an international basis. For this purpose the Earth was divided into 24 longitudinal zones, each zone being 15 degrees of an arc or one hour apart in time. The zero zone is centred at Greenwich (London) which gives the GMT or the Greenwich Mean Time. The 12th zone is divided by the 180th meridian the International Date Line.

The zones to the east of this line are numbered from 1 to 12 with the prefix *minus* indicating the number of hours to be subtracted to obtain the Greenwich Time. The zones to the west are similarly numbered with the prefix *plus* which shows the number of hours that must be added to get the Greenwich Time.

The Date line is a zigzag line that coincides more or less with the 180th meridian. When the Date line is crossed to the west the date must be advanced by one day. When the Line is crossed to the east, the date must be set back by one day. The Line is deflected between north latitudes 48° and 75° with the result that all Asia lies to the west of the line.

The twenty-four-hour time is now being increasingly used especially by railways and other transport organizations. Its great advantage is that it dispenses with the suffixes *a m*

and *p.m.* In the 24-hour system, day begins at midnight, the zero hour, and the hours that follow are consecutively numbered from 0 to 23.

NUMERALS

The numerals, now in everyday use, are called Arabic numerals, because it was from the Arabs that these numerals spread to Europe. Actually, they are Indian in origin and should rightly be called Indian numerals.

The concept of zero and the digital system (including decimals) are India's contributions to the science of numerals. The Arabs adopted the Indian system. The Europeans got it from the Arabs (See Landmarks of Science).

Among the authors, who were instrumental in transmitting Indian mathematical knowledge from Arab sources to Europe, the most famous was Leonard of Pisa (A.D. 1202). Other important authors were: John of Seville (1135), Adelard of Bath (1142), Robert of Chester (1142), Villedien (1240) and Sacrabosa (1242).

Roman Numerals are those used by the ancient Romans. They are letters converted into numbers I = 1, V = 5, X = 10, etc. They do not follow the digital system of Arab numerals. The general rules of Roman numerals are the following: (1) Repeating a letter repeats its value: XX = 10 + 10 = 20. (2) A letter placed after one of greater value adds thereto: VI = 5+1 = 6. (3) A letter placed before another of greater value subtracts therefrom: IV = 5 − 1 = 4. (4) A dash line over a numeral multiplies its value by thousand: X = 10 × 1000 = 10,000.

Some high Arabic numerals cause a lot of confusion, when used as words. The classic instance is *billion** which in U.S. is equal to *a thousand million* and in Britain to *a million-million.*

Arabic numerals and their corresponding Roman numbers ares given below:

Arabic & Roman

1	I	11	XI	30	XXX
2	II	12	XII	40	XL
3	III	13	XIII	50	L
4	IV	14	XIV	90	XC
5	V	15	XV	100	C
6	VI	16	XVI	200	CC
7	VII	17	XVII	400	CD
8	VIII	18	XVIII	500	D
9	IX	19	XIX	900	CM
10	X	20	XX	1000	M

Multiples

V 5000; X 10,000; L 50,000; C 100,000; D 500,000; M 1,000,000.

Higher Numerals

Number		US & France	UK & Other European Countries	India
1 & 5	zeros'	One Hundred Thousand	One Hundred Thousand	One Lakh
„ 6	„	Million	Million	Ten Lakhs
„ 7	„	Ten Million	Ten Million	One Crore
„ 8	„	Hundred Million	Hundred Million	Ten Crores
„ 9	„	Billion	Milliard (Thousand Million)	Hundred Crores
„ 12	„	Trillion	Billion	....
„ 15	„	Quadrillion	Thousand Billion	....
„ 18	„	Quintillion	Trillion	....
„ 21	„	Sextillion	Thousand Trillion	....
„ 24	„	Septillion	Quadrillion	....
„ 27	„	Octillion	Thousand Quadrillion	....
„ 30	„	Nonillion	Quintillion	....
„ 33	„	Decillion	Thousand Quintillion	....

* The word 'billion' wherever it is used in this book means a 'thousand million' (American sense) unless otherwise indicated.

200-Year-Old Maths Problem Solved

A mathematical problem which had been puzzling mathematicians for the past two centuries has been solved by a researcher at the Institute of Mathematical Sciences, Madras, in collaboration with two French men of numbers.

The problem in number theory which they have solved is "Every positive integer is a sum of fourth powers of at most 19 integers.

Dr. R. Balasubramanian of the IMS and Dr. Jean March Deshouillers and Dr. Francois Dress of University of Bordeaux, France, used the "circle method" developed by the late Srinivasa Ramanujam around 1918 to crack the problem.

The problem is actually a case of the more general one known as the "Warings problems" based on a conjecture by an English mathematician, Edward Waring, that "every (positive) number is the sum of four squares, nine cubes, 19 quartics (fourth powers), 37 fifth powers and so on....."

The three mathematicians proved the conjecture in the case of quartics by using the "circle method" for all numbers with more than 350 digits and a computer for numbers below in an algorithmic fashion.

Dr. Balasubramanian said the best example for elucidating the problem and its solution was the number 79. The only way 79 could be expressed as the sum of fourth powers is as follows: Four times two to the power of four, added to 15 times one to the power of four.

The number 79 is thus decomposed to 19 quartics, saturating the limit as set by Edward Waring, he said.

Dr. Balasubramanian said the solution

R. Balasubramanian

was the culmination of his earlier efforts, with an input of fresh ideas by Dr. Deshouillers and Dr. Dress. The crucial component came from a proposition he had proved in 1983-84.

His French collaborators, to whom he had sent his paper after they evinced keen interest in his work, deserved "all the credit of improving", upon my work appropriately", he added.

The Warings conjecture in the case of powers more than five was solved by the late S.S. Pillai of Annamalai University and a Chinese mathematician, Jing-run Chen, had proved the conjecture for the fifth power using computers and refinements to the circle theory.

Maths Olympics

For the first time, India will participate in an international mathematics Olympics to be held in Australia in 1988-89.

The annual Olympics aims at discovering mathematically talented secondary school students and encouraging them to continue their studies.

INTERNATIONAL UNITS

During the first half of the present century, there were two widely used systems of Weights and Measures – the Imperial System and the Metric System. The Imperial System prevailed in the British Empire.

The English speaking countries including the United States also adopted the Imperial System. The Metric System was followed in France and other European countries and their colonies and dependencies.

The Imperial System was derived from the old Anglo-Saxon measurements. They were rough and ready units based on standards that were readily available everywhere – the human hand, for example. In their very nature, they could never be precise and, worse, they changed from person to person and from place to place.

The *inch* was the 'knuckle of the thumb.' A *yard* was the distance from the tip of *King Edgar's* nose to the tip of the middle finger of his outstretched hand. An *acre* was the amount of land that could be ploughed in a day by a yoke of oxen. The *mile* came from the Roman legionaries. Their *milli* was 1000 paces or about 1618 yards. Paces being vastly different, the mile was eventually standardised at 1760 yards.

It was from such a conglomeration of odd units that the Imperial System of weights and measures was ultimately evolved. Although these basic units are now precisely defined, their conversion into larger or smaller units is an arithmetical torment. The mile, for example, is 12×3×220×8 inches and the short ton in 16×16×14×2×4×20 drams.

The Metric System, unlike the Imperial System, was deliberately thought out. This system was adopted by France in 1790 and propagated in other European countries by Napoleon. As adopted in France, the new unit of length was the *metre* which was equal to one-ten millionth of a quadrant of the Earth's meridian. The unit of weight or mass was the *kilogram*, which was defined as the mass of a cubic decimetre (0.1 c metre) of water. The volume represented by a cubic decimetre of water was to be called a *litre*.

In 1870 France called together a convention to evolve a unified metric system. In 1875 the Treaty of the Metre was signed in Paris. The treaty established an *International Bureau of Weights* and *Measures*, and *a General Conference on Weights* and *Measures*, which would meet periodically to adopt new definitions as the need arose.

In 1889 the metre and the kilogram were re-defined in terms of a bar of platinum-iridium alloy which was stored in a vault in Paris.

Today the metric system has been adopted by almost all nations.†

In 1954 the General Conference on Weights & Measures adopted one form of the Metric system as an internationally suitable system. In 1960 the system was named *System International de Unites* or the International System of Units, shortened to SI.

The system rests on 4 independent base units for *length, mass, time* and *temperature*. The units for length and mass are the *metre* and the *kilogram* respectively. The unit of time is the *second*, which has been defined in terms of the atomic clock. The unit of temperature is the degree Celsius (centigrade) or *Kelvin* as opposed to Fahrenheit. The conference has also accepted certain well-established units like the *minute* and the *hour* (units of time), the degree, the *minute* and the *second* as units of angular measurement and the *nautical mile* and *knot*.

The spectacular development of science and technology compelled the conference to define precisely, generally known units of measurement like length, mass or time. In addition, the conference had to adopt and define new units of measurement. The labours of the Conference in this regard led to the evolution of a complicated and highly technical international system. The definitions are stated in strict scientific jargon which the layman can hardly follow. A brief outline of the system is given below.

† In 1971 the US decided to change over to the Metric System in ten years at the end of which the US will be predominantly but not exclusively on the Metric System. The Metric Conversion Act of 1975 legalised the change-over and set up the US Metric Board to supervise it

Table of Metric Weights and Measures

Linear Measure

10	Millimetres (mm)	=	1	centimetre	(cm)
10	centimetres	=	1	decimetre	(dm)
10	decimetres	=	1	metre	(m)
10	metres	=	1	decametre	(da m)
10	decametres	=	1	hectometre	(hm)
10	hectometres	=	1	kilometre	(km)

Area Measure

100	square millimetres	=	1	square centimetre	
10,000	square centimetres	=	1	square metre	
100	square metres (m^2)	=	1	are	(a)
100	ares	=	1	hectare	(ha)
100	hectares	=	1	square kilometre	(sq km)

Volume Measure

	one litre	=		0.001 cubic metre	
10	millilitres (ml.)	=	1	centilitre	(cl)
10	centilitres	=	1	decilitre	(dl)
10	decilitres	=	1	litre	(l)
10	litres	=	1	decalitre	(da l)
10	decalitres	=	1	hectolitre	(hl)
10	hectolitres	=	1	kilolitre	(kl)

Weight

10	milligrams (mg)	=	1	centigram	(cg)
10	centigrams	=	1	decigram	(dg)
10	decigrams	=	1	gram	(g)
10	grams	=	1	decagram	(da g)
10	decagrams	=	1	hectogram	(hg)
10	hectograms	=	1	kilogram	(kg)
1000	kilograms	=	1	metric ton	(t)

Cubic Measure

1000	cubic millimetres	=	1	cubic centimetre	
1000	cubic centimetres	=	1	cubic decimetre	
1000	cubic decimetres	=	1	cubic metre	

Simple Conversion Table

Indian Units

Tolas to grams										
Tolas	1	2	3	4	5	6	7	8	9	10
Grams	11.66	23.33	34.99	46.66	58.32	69.98	81.65	93.31	104.97	116 64
Seers to kilograms										
Seers	1	2	3	4	5	6	7	8	9	10
Kilograms	0 93	1.87	2 80	3.73	4 67	5 60	6.53	7.46	8.40	9 33
Maunds to Quintals										
Maunds	1	2	3	4	5	6	7	8	9	10
Quintals	0 37	0 75	1.12	1.49	1.87	2.24	2 61	2.99	3.36	3.73

Double Conversion Tables for Weights and Measures

Note: The central figures (1 to 100) represent either of the two columns beside them, as the case may be.

Example: 1 centimetre=0.394 inch and 1 inch=2.540 centimetres.
1 metre=1.094 yards and 1 yard=0.914 metre. 1 kilometre=0.621 mile and 1 mile=1.609 kilometres.

Centimetres		*Inches*	*Metres*		*Yards*	*Kilometres*		*Miles*
2.540	1	0.394	0.914	1	1.094	1.609	1	0.621
5.000	2	0.787	1.829	2	2.187	3.219	2	1.243
7.620	3	1.181	2.743	3	3.281	4.828	3	1.864
10.160	4	1.575	3.658	4	4.374	6.437	4	2.485
12.700	5	1.969	4.572	5	5.468	8.047	5	3.107
15.240	6	2.362	5.486	6	6.562	9.656	6	3.728
17.780	7	2.756	6.401	7	7.655	11.266	7	4.350
20.320	8	3.150	7.315	8	8.749	12.875	8	4.971
22.860	9	3.543	8.230	9	9.843	14.484	9	5.592
25.400	10	3.937	9.144	10	10.936	16.094	10	6.214
127.000	50	19.685	45.720	50	54.681	80.468	50	31.068
254.000	100	39.370	91.439	100	109.361	160.936	100	62.136

Hectares		*Acres*	*Square Kilometres*		*Square Miles*	*Kilograms*		*Av. Pound*
0.404	1	2.471	2.590	1	0.386	0.454	1	2.205
0.809	2	4.942	5.180	2	0.772	0.907	2	4.409
1.214	3	7.413	7.770	3	1.158	1.361	3	6.614
1.619	4	9.884	10.360	4	1.544	1.814	4	8.818
2.023	5	12.355	12.950	5	1.931	2.268	5	11.023
2.428	6	14.826	15.540	6	2.317	2.722	6	13.228
2.833	7	17.298	18.130	7	2.703	3.175	7	15.432
3.237	8	19.769	20.720	8	3.089	3.629	8	17.637
3.642	9	22.240	23.310	9	3.475	4.082	9	19.842
4.047	10	24.711	25.900	10	3.861	4.536	10	22.046
20.234	50	123.554	129.498	50	19.306	22.680	50	110.231
40.468	100	247.108	258.995	100	38.611	45.359	100	220.462

Metric Tonnes		*Long Tons*	*Metric Tonnes*		*Short Tons*	*Litres*		*Pints*
1.016	1	0.984	0.907	1	1.102	0.568	1	1.760
2.032	2	1.968	1.814	2	2.205	1.136	2	3.520
3.048	3	2.953	2.722	3	3.307	1.705	3	5.279
4.064	4	3.937	3.629	4	4.409	2.273	4	7.039
5.080	5	4.921	4.536	5	5.512	2.841	5	8.799
6.096	6	5.905	5.443	6	6.614	3.409	6	10.559
7.112	7	6.889	6.350	7	7.716	3.978	7	12.319
8.128	8	7.874	7.257	8	8.818	4.546	8	14.079
9.144	9	8.858	8.165	9	9.921	5.114	9	15.8
10.161	10	9.842	9.072	10	11.023	5.682	10	17.6
50.803	50	49.211	45.359	50	55.116	28.412	50	87.9
110.605	100	98.421	90.718	100	110.231	56.824	100	175

system which contains as many elementary entities as there are atoms in 0.021 kilogram of carbon 12.

Derived Units with Special Names

Quantity	*Name*	*Symbol*
Frequency	hertz	Hz
Force	newton	N
Pressure	pascal	Pa
Quantity of electricity	coulomb	C
Electric tension	volt	V
Electric resistance	ohm	Ω
Luminous flux	lumen	lm
Illuminance	lux	lx

The supplementary units are 1. Radian (rad) Plane angle and 2. Steradian (sr) Solid Angle.

Radian. It is the plane angle which, having its vertex at the centre of a circle, cuts off a length on the circumference of the circle equal to the radius of the circle.

Steradian. It is the solid angle which, having its vertex at the centre of a sphere, cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of sphere.

Multiples and Subdivisions. Multiples and subdivisions (fractions) are indicated by appropriate prefixes. Multiples upto 1000 are indicated by the following prefixes – deca (10), hecto (100), and kilo (1000). Fractions up to 1000 are expressed as follows – deci (1/10), centi (1/100), and milli (1/1000).

For multiples and fractions above 1000 the following prefixes have been adopted.

Multiples

Tera	$= 10^{12}$	(1 followed by	12	zeros)
Giga	$= 10^{9}$	"	9	"
Mega	$= 10^{6}$	"	6	"
Kilo	$= 10^{3}$	"	3	"
Hecto	$= 10^{2}$	"	2	"
Deca	$= 10^{1}$	"	1	"

Fractions

Deci	$= 10^{-1}$	(0.1)
Centi	$= 10^{-2}$	(0.01)
Milli	$= 10^{-3}$	(0.001)
Micro	$= 10^{-6}$	(Decimal point, followed by 5 zeros and 1)
Nano	$= 10^{-9}$	(Decimal point, followed by 8 zeros and 1)
Pico	$= 10^{-12}$	(Decimal point, foolowed by 11 zeros and 1)
Femto	$= 10^{-15}$	(Decimal point, followed by 14 zeros and 1)
Atto	$= 10^{-18}$	(Decimal point, followed by 17 zeros and 1)

Thus a kilometre is 1000 metres and a megametre is 1,000,000 metres while a millimetre is 0.001 metre and a micrometre is 0.000,001 metre.

Very elaborate rules have been formulated with regard to notation, type to be used, prefix symbols and the exponent to be prefixed to a symbol. Symbols are not to be followed by full stop and do not change in the plural.

In 1969 the International Committee on Weights and Measures (CIPM), an auxiliary of the General Conference, recognised the use of some units which were strictly not part of the SI but which were in widespread use. Some of the commoner units and their SI equivalents are given below:

	SI Equivalent	
Length		
1 angstrom	0.1	nanometre (nm)
1 chain	20.12	metre (m)
1 engineer's chain	30.48	do
1 fathom	1.829	do
1 foot	0.304 8†	
1 furlong	0.201 2†	ki
1 inch	25.4	milli
1 link	0.201 2†	
1 mile	1.609	
1 nautical mile international	1.852	
1 nautical mile telegraph	1.855	
1 nautical mile U.K.	1.853	
Area		
1 acre	4047	
1 sq. foot		
1 sq. mile		
1 sq. yard		
Volume		
1 cubic foot		
1 cubic inch		
1 fluid ounce		
1 gallon,		
1 gallon US		

1 pint, imperial	0.586 3†	do	do

Mass

1 grain	64 80		milligram
1 hundred weight	50 80		kilogram
1 maund	37.32		do
1 ounce	28.35		gram
1 pound	0 453 6†		kilogram
1 quintal	100		do
1 seer	0 933 1†		do
1 tola	11.66		gram
1 ton	1 016		tonne
1 ton US	0 907 2†		do

Velocity

1 foot per minute	0 005 08†		metre per second
1 foot per second	0 304 8†		metre per second
1 inch per second	25 4		millimetre per second
1 knot	0 514 4†		metre per second
	1.852		km per hour
1 knot UK	0.514 7†		metre per second
	1.853		km per hour
1 mile per hour	0.447 0†		metre per second
	1.609		km per hour

Fuel Consumption

1 gallon per mile	2.825	litre per km
1 US gallon per mile	2.352	do
1 mile per gallon	0.354 0†	km per litre
1 mile per US gallon	0.425 1†	km per litre

† Among the rules of notation for S I one rule says that where a numerical value contains more than three digits, it is advisable to separate the digits into groups of three moving to the left or right of the decimal point. The separation is to be indicated by omitting a space and not by a comma as is usually done. The omission of space in item number 5 in the above table (0.304 8 instead of 0.304,8) and other similar omissions are to be treated as commas and read accordingly.

THE WORLD OF MEDICINE

The world is endowed with many systems of Medicine,–Allopathy, Homeopathy, Ayurveda, the Arabic, the Egyptian, the Graeco-Roman, etc While the Western system has entrenched itself with multifarious growth, there is a growing awareness of the distinctive efficacy of Eastern systems like the Ayurveda.

All ancient civilisations–Egyptian, Babylonian, Indian and Chinese–developed their own systems of medicine. Egyptian seems to have been the first and the best in the field. It had a fully developed medical system by the third millennium B C

We know very little of the Babylonian system and much less, almost nothing, of the Indus Valley system. The Indian system, as we know it, starts with the Rigveda (2000 B.C.). The earliest known medical treatise in China appeared around 450 B C.

The Egyptian system, like all other ancient systems, laboured under a heavy load of superstition and magic. Yet it developed many cures that have stood the test of time. Pain-killing drugs and sedatives were well-known to the Egyptians. Queen Nefretiti is portrayed in a bas-relief as administering a pain-killing drug to her ailing husband, the Pharaoh. *Henbane*, a herb, which is known to us as a sedative source was first used by the Egyptians. *Onion* as a cure for scurvy and also as a cure for intestinal disorders is an old Egyptian prescription.

The Chinese system must have been many centuries old when the first great medical treatise appeared in China around 450 B.C. This treatise, unlike the Indian *Rigveda* and the later *Atharvaveda*, is an elaborate treatise on medicine, comparable to the *Susruta Samhita* or the *Charaka Samhita* of India. It included, among others, detailed descriptions of *acupuncture* which has received international publicity during recent times. Between 600 and 900 A.D., the Chinese system of medicine, known as *Han-Yi*, had spread to Korea and Japan and much of South East Asia.

Ancient China had developed many cures some of which have come down to modern times. *Ephedra*, a herb which soothes coughs was known to the Chinese 4000 years ago. *Rhubarb* as a laxative was first used in China. *Pumpkin* seeds, another Chinese contribution is a well-known wormridder. It is now found to be effective against snail fever also.

The Graeco-Roman system was almost entirely derived from the Egyptian system. Most of its cures are of Egyptian origin. To the Greeks, we owe the first revolutionary change in medical practice–the liberation of medicine

from superstition and magic. *Hippocrates*, a Greek physician known as the Father of Medicine in the West, condemned the use of charms and chants in medicine. He laid down a code of conduct for medical practitioners. Scientific therapy started with Hippocrates.

The Arabs revolutionised the science of medicine by effecting a synthesis of Indian medical system and the Graeco-Roman system. They passed on this knowledge to Europe. The influence of Arabic medicine on Europe was widespread and longstanding. *Qunun* (Canon) written by the Arab scholar *Avicenna* (11th cent. A.D.) became the primary text of medical studies in Europe and continued to be so as late as the 17th century.

Under the Mughal Emperors, Arab medicine came to India. It took root in India, under the name of *Unani* , mainly because there was so much in common between the old Indian system and the new Unani system. The term *Unani* is derived from the Sanskrit *Yavana* meaning Greek. The Unani system continues to this day in India.

The Indian System known as *Ayurveda* originated as far back as 2000 B.C. *Ayurveda* is a compound word in Sanskrit, meaning, literally, *the Science of Life*. Actually, it implies two connected ideas–the science of life and the art of living.

Ayurveda, unlike allopathy or homeopathy, does not swear by any particular principle of cure. Ayurvedic treatment covers all the principles of allopathy, homeopathy and naturopathy. "Thus", says Pandit Shiv Sharma, President of the Central Council of Indian Medicine, "the homeopathic opium which cures constipation and the allopathic opium which causes it, both fall within the Ayurvedic therapeutic measures".

According to Ayurveda, "there are three basic constituent complexes in the physiological system called *doshas*. They are *Vayu* or *Vata, Pitta* and *Kapha* or *Sleshma*. These terms, though literally they mean *wind, bile* and *phlegm* respectively, embrace much more. Among them, they sustain the whole body metabolism.

Good health implies an ideal balance between the three doshic factors. No true *mono-doshic* individual exists. It is the predominance of any particular *dosha* which marks the constitutional types of men. On this basis, humans are divided into three psychosomatic types, namely the *vatapraktiti*, the *pitta-prakriti* and the *kaphaprakriti*.

The Ayurvedic physician has to evaluate the *doshic* picture of the patient and find out what type of *tridosha* predominates and set right the imbalance by prescribing drugs, diets and practices.

The western system of medicine was later named *Allopathy* by *Hahnemann* to distinguish it from his own system Homeopathy. Allo, from the Greek word *Alos*, means other or another, and implies the treatment of diseases by other drugs, that is, drugs having effects opposed to the symptoms. Homeo, from Greek word *Homos*, means treatment by drugs having the same effects as the symptoms of disease. In other words, homeopathy (literally, similar suffering) is based on the prinicple 'like cures like' while allopathy is based on the principle opposites cure opposites.

Milestones of Medicine

Invention/Discovery	Date	Inventor/Discoverer	Country
Ayurveda	2000-1000 BC	Atreya	India
Western Scientific Therapy	460-370 BC	Hippocrates	Greece
Yoga	200-100 BC	Patanjali	India
Ashtanga Hridaya	c.550 AD	Vagbhata	India
Sidhayoga	c.750	Vrdukunta	India
Anatomia*	1316	Mondino	Italy
Chemotherapy	1493-1541	Paracelsus	Switzerland

* First book on Anatomy

Modern Medicine

Circulation of blood	1628	William Harvey	Britain
Biochemistry	c.1648	Jan Baptista Van Helmont	Belgium
Bacteria	1683	Leeuwenhock	Holland
Neurology	1758-1828	Franz Joseph Gall	Germany
Physiology	1757-66	Albrecht Von Haller	Switzerland
Vaccination	1796	Edward Jenner	Britain
Histology	1771-1802	Marie Bichat	France
Stethoscope	1819	Rene Laennec	France
Embryology	1792-1896	Karl Ernest-Van Baer	Estonia (USSR)
Morphine	1805	Friderich Serturner	Germany
Chloroform as anaesthetic	1847	James Simpson	Britain
Rabies Vaccine	1860	Louis Pasteur	France
Bacteriology	1872	Ferdinand Cohn	Germany
Leprosy bacillus	1873	Hansen	Norway
Cholera, T.B. germs	1877	Robert Koch	Germany
Malaria germs	1880	Laveran	France
Diphtheria germs	1883-84	Klebs & Loffler	Germany
Aspirin	1889	Dreser	Germany
Virology	1892	Ivanovski & Bajernick	USSR, Holland
Psycho-analysis	1895	Sigmund Freud	Austria
Serology	1884-1915	Paul Ehrlich	Germany
Anti-toxins (science of immunity)	1890	Behring & Kitasato	Germany, Japan
Adrenaline	1894	Schafer and Oliver	Britain
Endocrinology	1902	Bayliss & Starling	Britain
Electro-Cardiograph	1906	Einthoven	Holland
Typhus Vaccine	1909	J. Nicolle	France
Sex hormones	1910	Eugen Steinach	Austria
Vitamins	1912	Sir F.G. Hopkins	Britain
Vitamin C	1912	Froelich Holst	Norway
Vitamin A	1913	McCollum and M. Davis	USA
Vitamin B	1916	McCollum	USA
Synthetic Antigens	1917	Landsteiner	USA
Thyroxin	1919	Edward Calvin-Kendall	USA
Insulin for Diabetes	1921	Banting & Best	Canada
Vitamin D	1922	McCollum	USA
Vitamin B1	1926	Minot & Murphy	USA
Penicillin	1928	Alexander Fleming	Britain
Cortisone	1936	Edward Calvin-Kendall	USA
D.D.T. (Dichloro-Diphenyl-Trichloroethane)	1939	Paul Muller	Germany
Rh-factor	1940	Karl Landsteiner	USA
Streptomycin	1944	Selman Waksmann	USA
LSD (Lysergic acid-diethylamide)	1943	Hoffman	Swizerland
Kidney Machine	1944	Kolf	Holland
Chloromycetin	1947	Burkholder	USA
Aureomycin	1948	Duggar	USA
Reserpine	1949	Jal Vakil	India
Terramycin	1950	Finlay & Others	USA
Cryo-Surgery	1953	Henry Swan	USA
Open Heart Surgery	1953	Walton Lillehei	USA

Poliomyelitis vaccine	1954	Jonas Salk	USA
Poliomyelitis vaccine (oral)	1954	Albert Sabin	USA
Contraceptive pills	1955	Pincus	USA
Use of artificial heart for surgery	1963	Michael de Bakey	USA
Heart Transplant Surgery	1967	Christian Barnard	S.Africa
First Test Tube Baby	1978	Steptoe & Edwards	Britain
Gene Therapy on humans	1980	Martin Clive	USA
Small Pox eradicated	1980	W.H.O. Declaration	
Genes associated with Cancer	1982	Robert Weinberg & others	USA

HUMAN BIOLOGY

The human body is a wonderful amalgam of thousands of small and delicate elements. Here is a glossary of the most essential information that will help you to explore this mysterious world.

A

Abdomen. A large body cavity lying between the thorax (chest cavity) and the pelvis. It contains organs that play a part in digestion (stomach, intestines, spleen, liver, gall bladder and pancreas) and excretion (kidneys and bladder). In women the abdomen also contains the ovaries and womb.

Abortion. The premature expulsion, from the womb, of a foetus during the first 90 days of pregnancy.

Abscess. A painful inflammation in the body tissue, usually occurring as a response to invasion by harmful bacteria.

Achilles tendon. A thick, prominent TENDON at the back of the ankle connecting the calf muscle to the heel.

Acne. An inflammatory disorder of the sebaceous glands just below the skin surface.

Acupuncture. A treatment involving the insertion of needles into the skin, practised for many centuries in China and other Far Eastern countries, and now also used in the West.

Acute. As a description of a disease, acute means that the condition occurs suddenly, lasts for a comparatively short time and is marked by severe symptoms.

Adam's apple. A bulge at the front of the neck formed by the thyroid cartilage, which is attached to the front of the LARYNX, or voice box.

Addison's disease. A disease of the ADRENAL GLANDS, studied by the English physician Thomas Addison (1793-1860), after whom it was named. The outer part (cortex) of the gland wastes away, usually after an infection, causing a deficiency of essential hormones.

Adenoids. Collections of lymphoid tissue that lie at the back of the nasal passages.

Adolescence. The period of life between puberty and adulthood.

Adrenal Glands. A pair of helmet-shaped endocrine glands up to 5 cm. (2 in.) long and situated above the kidneys.

Adrenaline. A hormone secreted by the inner part, or medulla, of the ADRENAL GLANDS.

Agranulocytosis. An acute condition in which the number of granular white cells (granulocytes) in the blood falls drastically.

Albino. An individual who lacks the pigment melanin in the skin, hair and eyes. Albinos have white hair, pink skin, a pink tinge to the eyes, and may be sensitive to light.

Alcoholism. Excessive drinking of alcohol to such an extent that it interferes with the drinker's health, home life or work.

Alimentary Canal. An alternative name for the digestive tract through which food passes to the rectum via the pharynx, oesophagus, stomach and intestines.

Alkaloids. A group of chemicals which occur naturally in plants, and which have profound and varied effects on the human body.

Allergy. An abnormal sensitivity to certain substances. Reactions range from skin rash or running nose to severe swelling of the limbs or difficulty in breathing.

Alopecia. The scientific name for baldness. Hair is usually lost from the scalp, although

other parts of the body may be involved.

Amion. The thin, tough transparent membrane that encloses the foetus in the womb.

Anaemia. A fall in the number of red cells in the blood or a reduction in the amount of the haemoglobin, the oxygen—carrying pigment that they contain.

Anaesthesia. A loss of feeling in all or part of the body. It can occur as a result of nerve damage, but commonly anaesthesia is deliberately induced, usually with drugs, to enable a patient to have an operation without feeling pain.

Anaphylaxis. A sudden and severe reaction to inoculations, insect stings, injections, or certain drugs.

Aneurysm. Abnormal weakening of the wall of a blood vessel. It may be a CONGENITAL DEFECT, or due to injury, infection or ARTERIOSCLEROSIS.

Angina Pectoris. Spasmodic pain in the chest, and sometimes in the upper arms and neck, which is a symptom or heart disease.

Anthrax. A dangerous bacterial disease of sheep, cattle and other animals which can be contracted by man through handling infected animals, or their hides or carcases.

Antibiotics. A group of chemicals produced naturally by a number of fungi, bacteria and moulds which are widely used in medicine to treat bacterial infections

Antibody, Antigen. The two major elements involved when the body is invaded by disease. An antibody is a form of the protein gamma GLOBULIN found in the blood serum It is produced by the body as a defence against a foreign substance called an antigen, usually a protein, such as a bacterium or an alien blood cell.

Antihistamine. A drug used to treat the symptoms of an ALLERGY. It can also help to alleviate travel sickness and colds.

Antitoxin. A type of ANTIBODY that neutralises a poison (toxin) by combining with it.

Aorta. The largest artery in the body. It carries oxygenated blood from the left ventricle of the heart and distributes it to most other parts of the body.

Aphrodisiac. A substance thought to enhance sexual desire. The word is derived from Aphrodite, the Greek goddess of love.

Apoplexy. The condition generally known as a stroke. It is due to a rupture in the wall of a blood vessel in the brain (CEREBRAL HAEMORRHAGE) or to obstruction of blood circulation in the brain by a blood clot (THROMBOSIS).

Appendix. A hollow, blind-ended tube about 10 cm (4 in) long, branching off the caecum (part of the large intestine) and situated in the lower right part of the abdomen.

Arm. Accurately, the upper limb from the shoulder to the elbow; but the arm is commonly taken to include the forearm from the elbow to the wrist also.

Arteriosclerosis. A chronic disease in which the arteries become progressively narrower and less flexible as the individual ages.

Artery. A blood vessel that carries blood away from the heart to the body tissues. With the exception of the pulmonary artery, which supplies the lungs, all arteries contain blood that is rich in oxygen.

Arthritis. Inflammation of a joint. The term covers a group of diseases, the most widespread of which are osteoarthritis and rheumatoid arthritis.

Asphyxia. Unconsciousness due to interference with the breathing, which results in a lack of oxygen in the blood.

Asthma. A disease of the bronchial tubes characterised by recurrent attacks of wheezing, breathlessness and coughing.

Astigmatism. A defect in the surface curvature of the eye, which prevents light from being focused properly. Vision is distorted or blurred.

Autonomic nervous system. The part of the NERVOUS SYSTEM controlling the body's automatic functions, such as breathing and heart beat.

B

Bacterial Disease. Disease caused by harmful bacteria (commonly called pathogenic bacteria or germs).

Balance. The perception and maintenance of the body's position in relation to its surroundings.

Basal metabolic rate. The rate at which the body consumes energy to maintain vital functions, such as breathing, circulation and essential chemical activities.

Bends. A painful and often crippling condition that occurs when a person returns too quickly from a high-pressure atmosphere to one of lower pressure, as when a deep-sea

AIDS is Spreading

AIDS — Acquired Immune Deficiency Syndrome — is spreading far beyond the borders of the U.S. where it was discovered seven years ago. It claimed its first victim in India on June 9, 1986.

According to experts participating in a conference on AIDS held in Paris in June 1986, there will be 3,00,000 new cases of AIDS in 1991 alone if the virus spreads in the rest of the world as it has in the U.S. In the U.S. 74,000 new AIDS cases were forecast for the same year. It was estimated that by then more than a quarter of a million Americans would have caught the disease and 1,79,000 would have died. The U.S. hospital bill for AIDS for 1991 is forecast to be 8 billion dollars (about Rs. 10,000 crore.)

France is the worst affected European country and recorded about 700 cases by the first quarter of 1986. West Germany is next with 457, Britain third with 340 and Italy fourth with 219.

AIDS is a specific clinical entity associated with infection by a virus, a retrovirus called HTLV-III (Human T-Lymphotrophic Virus Type-III) or LAV (Lymphadenopathy — Associated Virus) or ARV (AIDS—Related Virus) depending upon the manner in which the virus was isolated by various research groups. Late last year the International Committee on Taxonomy of Viruses collectively named it Human Immuno deficiency Virus (HIV).

When a Child has AIDS

Children with AIDS has became an alarming problem with the West. The innocent young ones ostracised by home and society evoke universal sympathy and concern.

There is a special urgency about treating children with AIDS. The disease has a shorter incubation period in children than it has in adults, sometimes erupting in a matter of months rather than years. And it can be harder to diagnose. Yet, experts agree, the AIDS-infected child should get help early—just as the first subtle symptoms appear.

Only about half of babies born to AIDS-infected mothers actually have been infected themselves. But it can be hard to pick them out. The conventional blood tests detect AIDS virus antibodies. But they don't tell whether the antibodies came naturally from the mother's bloodstream or whether the child has produced them himself as the result of infection.

Tests to detect the AIDS virus itself would solve the problem, but currently they are complicated and sometimes unreliable. In children, moreover, symptoms don't usually appear until after the first three or four months of life.

Love might be the hardest thing to get: An AIDS poster.

After that, the child might develop a recurrent respiratory infection or fluid in the ears, but unless the physician is wary he may not think to test for AIDS. "Pediatric AIDS in the first year of life is the most difficult (diagnosis) in all of AIDS," says Parks.

Children with AIDS are more likely to get bacterial infections than the viral and fungal diseases adults get because they haven't had time to develop antibodies against bacteria. An unusual affliction, lymphoid interstitial pneumonia, appears almost exclusively in AIDS kids.

One reason for this susceptibility to bacteria is that, in youngsters, AIDS tends to destroy not only the T4 lymphocytes but also the "B" lymphocytes that manufacture the antibodies that are targeted to combat bacteria.

diver returns too quickly to the surface.

Beri-Beri. A deficiency disease caused by a lack of vitamin B_1 (thiamine) in the diet.

Biceps. Any muscle in which two separate masses of muscle fibres operate through a single tendon.

Bile. A bitter yellow-green fluid that assists in the digestion and absorption of fats and helps to neutralise the stomach acids once they reach the intestines.

Birthmark. A patch or swelling on the skin that is present at birth, also known as a naevus. It may be a pigmented area (mole) or a blood-vessel birthmark (haemangioma).

Bladder. A hollow organ with muscular walls that stores urine before it is excreted.

Blister. A bubble of fluid in the skin, usually caused by rubbing or burning.

Blood. The body's transport system—a fluid which carries oxygen and essential nourishment along the arteries to every living tissue in the body, removing through the veins carbon dioxide and waste products of metabolism such as urea.

Blood Groups. Blood can be classified in four main groups: A, B, AB and O. The group to which a person's blood belongs depends on the presence or absence of factors A and B in the red cells, and the presence or absence of factors anti A and anti B in the SERUM.

Blood Pressure. The pressure exerted by the blood on the arterial walls. It is determined by the power of the heart's pumping action and the resistance of the smaller blood vessels

Blood Transfusion. The injection of blood from one person, the donor, into the circulatory system of another

Blue baby. A baby whose skin and lips have a bluish tinge because of an inborn heart defect.

Boil. A tender, pus-filled swelling of the skin caused by bacterial infection, usually staphylococcus germs.

Botulism: A form of food poisoning caused by a toxin produced by bacteria.

Brain. The centre of the nervous system and the co-ordinator of all the body's conscious and unconscious activities

Breast. The mammary or milk-producing organ of women. The breasts develop during puberty in response to the stimulus of hormones.

Bronchitis. Inflammation of the bronchi, the tubes leading from the trachea to each lung.

Brucellosis. A common disease of cattle caused by the bacterium **Brucella** which can be passed on to man by contact with an infected animal or its carcase, or by drinking infected milk.

Bruise. A swelling or surface discoloration of the skin, also known as a contusion, which results from a blow or pressure.

Bunion. A painful deformity of the big toe in which the toe is twisted so that the nail faces sideways.

Burns and scalds. Death or injury to the body tissues caused by heat — burns are from dry heat, scalds from moist heat.

Bursa. A small fluid-filled pouch found in parts of the body exposed to pressure or friction.

C

Caecum. The first part of the large intestine.

Callus. A hard, thickened area of skin which develops where there is regular pressure or friction — for example, on the palms of the hand or soles of the feet.

Cancer. Any of a group of diseases, caused by the uncontrollable, abnormal multiplication of cells. Cancer may affect any tissue, including the blood, when it is known as leukaemia. If it occurs in the skin or mucous membranes the growth is described as a carcinoma; a sarcoma is cancer of CONNECTIVE TISSUE, including bones and muscles

Capillary. A minute thin-walled blood vessel.

Carbohydrate. A chemical compound of carbon, hydrogen and oxygen which forms one of the main constituents of food.

Carbon monoxide poisoning. The poisoning of tissues through inhalation of carbon monoxide, a gas commonly produced by car exhausts and poorly ventilated coke fires.

Carbuncle. A painful, pus-filled infection of the skin usually caused by the bacterium **Staphylococcus aureus.**

Carcinoma. See Cancer.

Caries. Decay of a tooth or a bone. Dental caries is one of the commonest human diseases

Carpus. A group of eight small bones that form the wrist.

Cartilage. Flexible, white CONNECTIVE TISSUE, which lines the joints of the body and forms the stiffening in the ears, nose tip and the larynx.

Cerebellum. The area of the brain which co-ordinate the body's movements.

Cerebral haemorrhage. Bleeding inside the brain from a broken blood vessel. The rupture deprives an area of brain tissue of its blood supply causing permanent damage.

Cerebrum. The largest part of the brain composed of two similar sized cerebral hemispheres, left and right.

Cervix. The neck of the WOMB which projects into the upper part of the vagina.

Chagas's disease. A type of SLEEPING SICKNESS that occurs in Central and South America.

Chest. The part of the body between the neck and the abdomen.

Chicken pox. An acute infectious disease, common in childhood. Chicken pox, or varicella, is caused by a virus and is highly contagious, producing skin eruptions that start as red marks and develop into blisters.

Cholera. An acute infectious disease caused by the baterium **Vibrio cholerae.**

Cholesterol. A substance present in the blood and body tissues, as well as in many foods.

Chorea. Involuntary, muscular twitching movements which, in severe cases, may affect all muscles except those moving the eyes.

Chronic. As a description of a disease, chronic means that the condition lasts for a long time and changes only slowly.

Cimetidi. A recently developed drug for treating peptic ULCERS.

Cirrhosis. A chronic disease of the liver in which liver cells are progressively destroyed and replaced by fibrous or fatty tissue.

Clavicle. The collar bone which connects the shoulder blade to the breast bone and helps to support the arm.

Cleft palate. A CONGENITAL DEFECT in which the two sides of the palate fail to grow together, producing a split in the roof of the mouth.

Clitoris. A small mass of sensitive erectile tissue in women, located at the top of the VULVA.

Clomiphene. See Fertility Drugs.

Cold. See COMMON COLD.

Colic. Severe intermittent abdominal pain caused by muscular spasms in one of the tubes in the abdomen.

Colon. The lower part of the digestive tract comprising a muscular tube about 1.5 m (4 ft 6 in.) long.

Coma. A state of deep, impenetrable, unconsciousness that may be caused by disease.

Common Cold. An infectious disease of the respiratory system, particulary the nose, throat and bronchi. A large number of viruses are known to cause colds, and new cold causing viruses continue to be discovered.

Congenital defect. Any abnormal condition that exists at birth.

Conjunctiva. The moist membrane that covers the eyeball and lines the eyelids

Connective tissue. The TISSUE that forms the fibrous supporting skeleton of the organs of the body.

Contraception. The prevention of conception or pregnancy.

Corn. A painful thickening of the skin on or between the toes, usually the result of pressure from poorly fitting shoes.

Cornea. The transparent covering through which light enters the eyeball.

Coronary heart disease. Narrowing or blockage of the coronary arteries, which supply blood to the heart muscle

Corticosteroids. A group of hormones produced by the cortex of the adrenal glands

Cot death. Unexpected death of an infant at home, often in the cot a night.

Cough. A sudden, explosive expulsion of air from the air passage, which occurs as a reflex response to an irritant or a blockage in the windpipe or bronchial tubes

Cramp. A spasmodic, painful contraction of a muscle, often occurring as a result of excessive exercise

Cranial nerve. Any of the 12 pairs of nerves that connect directly and independently, with the brain

Cranium. Another name for the skull, the group of bones which interlock to form the framework of the head

Cretinism. A congenital condition of arrested development

Cryosurgery. A technique used in SURGERY in which tissue is destroyed by applying extremely low temperature.

Cushing's syndrome. A group of symptoms caused by an excess of other adrenal hormones in the

Cuticle. The protective layer of the skin, also known as the epidermis.

Cyst. A closed sac filled with liquid or semi-solid matter which forms a lump in organs, tissue or body cavities.

Cystitis. Inflammation of the urinary bladder, usually marked by an urge to pass urine frequently and by a painful burning sensation during urination.

D

Dandruff. A condition in which small flakes of dead skin accumulate in the hair.

Cancer Detection

Early detection of cancer is the most effective way of fighting it American Cancer Society recommends the following time table:

1. For women between 20 and 65 (and those under 20 who are sexually active), the Pap test for cervical cancer may be done once every three years (after two negative tests a year apart)

2 Women should have breast X rays, once between 35 and 40 to establish a reference, then at the advice of a physician until 50, and every year after 50 Women should continue to give themselves breast examinations each month

3 As Lung Cancer is still so resistant to cure, early detection by annual chest X rays or Sputum Cytology, an analysis of lung cells contained in sputum, is useless Rather prevention, especially by avoiding smoking, is advised

4 Examination of the rectum and colon with a sigmoidoscope, is suggested every three to five years (after two negative tests a year apart) for people over 50.

5 Annual guaiac slide tests on stool to detect intestinal bleeding should be done from ages 40 to 50

6. General checkup for cancer, including physical examination of the breasts and pelvic, testicles and prostate, thyroid, lymph nodes, mouth and skin, is suggested once every three years between ages 20 and 40, and annually thereafter.

(Source TIME)

Deafness. There are two types of deafness: Conductive deafness and nerve deafness. The first type occurs when something goes wrong with the passage of sound waves in the ear. Nerve deafness results from damage to the auditory nerves, which may arise from a tumour, haemorrhage or injury in the skull.

Death. The usual definition of death is the absence of essential activity in the brain for several hours.

Deficiency disease. A condition caused by an inadequate intake of essential foods in particular vitamins and minerals.

Delirium. Acute mental disturbance in which confusion, disordered speech, excitement and restlessness occur, sometimes with hallucinations.

Dementia. Loss or impairment of mental capacity, often associated with emotional or behavioural disturbances, that usually develops gradually.

Dermatitis. Inflammation of the skin. Dermatitis can have many causes including, for example, ALLERGY, bacterial infection, chemical irritants or skin disease.

Diabetes. A disorder in which the body cannot control the use of sugars as an energy source. It occurs when insufficient quantities of the hormone INSULIN are produced by the pancreas.

Diaphragm. A muscular partition which separates the chest and the abdomen, and plays an essential part in breathing.

Diarrhoea. Frequent and excessive discharge of watery faeces from the bowels.

Diastole. The regular relaxation of the heart after each contraction, cf. SYSTOLE.

Digestion. The breakdown of food in the digestive tract into simpler elements so that it can be absorbed into the bloodstream and used for energy, repair of tissues, and growth.

Diphtheria. An acute infectious disease caused by a bacterium.

Diverticular disease. A defect in the large intestine, or colon, in which pouches of the inside lining are forced out through the muscular layers of the wall.

Dropsy. See Oedema.

Drugs. Any chemical compound used to treat or prevent diseases, relieve symptoms or help in diagnosis

Dumbness. Loss of speech. This may be the result of disorder of the brain (aphasia) or of the nerves of the larynx (aphonia).

Duodenum. The first 25 cm of the small intestine.

Dwarfism. A condition of seriously retarded or stunted growth.

Dysentery. A serious infection of the intestinal tract that produces frequent attacks of diarrhoea, with blood and mucus in the stools.

E

Ear. As well as being the organ of hearing, the ear is also concerned with balance.

Eczema. A red, itchy skin rash, often accompanied by blisters.

Elbow. The hinged joint between the *humerus* (upper arm bone) and the radius and ulna (forearm bones).

Electrocardiogram. A tracing of the electrical activity in the heart. An electrocardiogram (ECG) is made by a machine called an electrocardiograph.

Electroencephalogram. A tracing of the electrical activity in the brain. An electroencephalogram (EEG) is made by a machine called an electroencephalograph.

Embolism. Blockage of a blood vessel by material (an embolus) that has come from elsewhere in the body.

Emphysema. A disease of middle or old age in which the lung's alveoli, or air sacs, are enlarged.

Encephalitis. An acute inflammation of the brain occurring in various forms and caused by a dozen or so different viruses.

Endemic disease. A disease that persists in a particular area or among a particular population group.

Endocrine gland. A gland, sometimes known as a ductless gland, that secretes a HORMONE directly into the blood.

Endogenous opioids. A group of recently discovered naturally occurring 'chemical messengers' (peptides) in the brain which when released at the nerve synapse appears to have a pain-killing effect

Endothelium. A MEMBRANE that lines body cavities and blood and lymph vessels.

Epidemic. An outbreak of infectious disease that affects many people at the same time.

Epidermis. The outermost layer of the skin

Epiglottis. A flap of fibrous cartilage at the opening of the LARYNX (the glottis)

Epilepsy. A periodic loss of consciousness, sometimes accompanied by convulsive fits, caused by sudden, excessive discharges of electrical energy in brain cells.

Episiotomy. An incision in the skin and superficial muscle of a woman's perineum during childbirth.

Epithelium. The layer of cells that covers the external and internal surfaces of the body.

Ergotism. A condition resulting from an overdose of ergot, a drug used to contract the muscles of the womb after childbirth.

Erysipelas. A painful, highly infectious skin disease, characterised by dark red, patchy inflammation.

Erythema. Unusual redness of the skin caused by a collection of blood in the small surface vessels (capillaries) of the skin.

Erythrocyte. A red bloodcell which owes its colour to the HAEMOGLOBIN.

Excretion. The elimination of waste matter from the body.

Exophthalmos. Abnormal protrusion of the eyeball, sometimes the result of a tumour or an infection

Eye. Light reflected from objects enters the eyes and stimulates nerves which feeds the brain with information it interprets as visual images.

F

Faeces. Residue of food together with bacteria, cells from the intestinal lining, and secretions (mainly from the liver) which is discharged from the bowels.

Fallopian tubes. Two muscular tubes, or oviducts, one on each side of the female abdomen. They conduct ova (eggs) from the ovaries to the womb.

Fat. An essential food, either animal (saturated fat) or vegetable (unsaturated) in origin

Femur. The thighbone. The entire weight of the upper part of a person's body is borne by the two femora, which are the largest, longest, and strongest bones in the body

Fertility drugs. Term describing therapeutic substances which stimulate ovulation in women whose infertility is due to a malfunction in the reproductive system

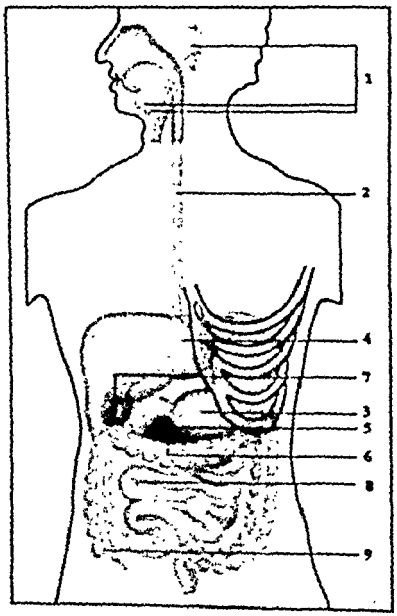
Fever. Abnormal increase in body temperature. It is usually caused by a bacterial or viral infection, and is the body's natural reaction to an invasion

Fibula. The more slender of the two long bones of the lower leg

How Food is Digested

Within a few minutes of being swallowed, some of the food has been propelled into the first part of the intestine, which is called the duodenum, and the stomach is normally empty within two to three hours of a meal.

The average time taken for digestion to be completed in the small intestine is approximately 12 hours. Food is propelled through the intestines by a regular series of muscular contractions, or peristaltic waves, which squeeze the intestinal contents like toothpaste in a tube.



1. *Salivary gland. Located in the cheeks, under the tongue and in the lower jaw, these produce saliva, a digestive juice which helps to lubricate food and break it down to simple sugars.*
2. *Oesophagus. A muscular tube which carries food from throat to stomach. It is closed at each end by a sphincter, or ring of muscle.*
3. *Stomach: A storage place in which food is churned, and where the digestive process is continued by the mixture of acid and peptic enzymes secreted by glands in the stomach lining. Stomach acid also destroys bacteria that may have been swallowed with the food.*
4. *Liver: The products of digestion (excluding fats) are absorbed into the bloodstream and carried along the portal vein to the liver. There they are stored, or used in the synthesis of chemicals needed by the body.*
5. *Duodenum: The first 25–30 cm (10–12 in) of the small intestine, where to the mixture of food and enzymes from the stomach is added the digestive juices from pancreas, gall bladder and glands in the intestinal walls.*
6. *Pancreas: This produces pancreatic juice which flows into the duodenum to help digest proteins, fats and carbohydrates. Pancreatic juice is produced continuously, but the flow is increased by the influence of hormones released when food enters the duodenum.*
7. *Gall bladder: A pear-shaped sac about 10 cm (4 in) long. Situated under the liver, it stores and concentrates bile secreted by the liver. After a meal, the bile is released into the duodenum to help with the digestion of fats.*
8. *Small intestine: A coiled muscular tube about 7 m (23 ft) long, made up of the jejunum and ileum. Here digestion is continued and the resulting products are absorbed into the blood-stream.*
9. *Colon: A 1.4 m (4 ft. 6 in) long tube where water is absorbed to leave solid faeces—consisting of the remains of undigested food, cells shed from the intestinal lining, bile salts, and acids from the liver.*

Filariasis. Tropical disease caused by the presence of parasite filariae, or thread worms.

Fistula. An abnormal passage joining two hollow organs, or leading from an organ to the surface.

Fit. Term usually used to describe a convulsion. It is also sometimes applied to EPILEPSY or hysteria.

Flatulence. Condition in which air or gas (flatus) accumulates in the stomach or intestines.

Flouride. A compound of the chemical element fluorine and another element such as potassium or sodium.

Foetus. An unborn baby two months or more after conception.

Follicle. A minute cavity or sac found in many parts of the body.

Fontanelle. A soft area of cartilage on a baby's head where the skull bones have not joined.

Foot. The foot contains 26 bones and 33 joints, held together by more than 100 ligaments.

Fracture. A break in a bone. There are two main types of fracture: a simple fracture when the skin is not broken and the surrounding tissues are not damaged, and a compound or open fracture when the tissues and skin are both damaged.

Freckle. A brown skin spot commonly found on the face and arms in fair complexioned people.

Frostbite. Damage to skin and tissues caused by prolonged exposure to low temperatures.

Fungus disease. Disease caused by fungi growing in the tissues of the body.

G

Gall bladder. A pear-shaped reservoir (7.5-10 cm (3-4 in) long, in which BILE secreted by the liver is stored before being passed to the intestine by the bile duct.

Ganglion. A group of nerve cells which act as a relay centre for interconnecting nerve fibres.

Gangrene. Death of tissues due to a lack of oxygen in the cells, commonly caused by the blood supply having ceased.

Gastric juice. A juice that is secreted by the many small glandular cells which line the stomach.

Gastro-enteritis. Inflammation of the lining of the stomach and intestines. Symptoms include fever, diarrhoea and vomiting.

Genetic counselling. See Hereditary Diseases.

German measles. See Rubella.

Gigantism. Overgrowth of the long bones of the arms and legs before adulthood.

Gingivitis. Inflammation of the gums that manufacture chemical compounds essential to the body's functioning.

Glandular fever. See Mononucleosis.

Glaucoma. A disorder of the eyes caused by an increase in the pressure of the fluid in the eyeballs.

Globulin. A large, complex protein molecule that is a constituent of blood.

Goitre. Abnormal swelling of the thyroid gland. This gland, situated in the front of the neck, controls the body's chemical process or metabolism.

Gonads. The reproductive glands – OVARIES in the female and TESTES in the male.

Gonorrhoea. A veneral disease caused by the gonococcus bacteria.

Gout. A disease caused by the production of excessive amounts of uric acid in the body due to a disorder in the body's chemical processes.

Growth. The process of enlargement that takes place from conception until the age at which the individual reaches physical maturity.

H

Haemoglobin: A compound of protein and iron in the red cells which gives blood its colour and which carries the oxygen from the lungs to the body tissues, returning with the waste product carbon dioxide.

Haemophilia: An inherited disease in which the blood clots abnormally slowly.

Haemorrhage: Loss of blood from the blood vessels. If the bleeding is severe and causes an adult victim to lose more than 1 litre (2 pints) of blood, shock will result.

Haemorrhoid: Enlarged vein in the wall of the ano-rectal canal (the end part of the bowel).

Hair: A filament-like structure of dead cells filled with a tough protein called keratin.

Halitosis: Persistent bad breath. It may be caused by tooth decay, by infection of gums, tonsils, nose, sinuses or lungs, kindey malfunction or by disease o

stomach and intestines.

Hangover: The after-effects of drinking too much alcohol.

Hare-lip: Congenital defect of the upper lip, caused by the two sides of the face failing to unite before birth.

Hay fever: Allergic condition with symptoms resembling those of a common cold.

Headache: The brain itself is insensitive to pain, but the nerves leading from the blood vessels of the brain can produce painful sensations, and are very sensitive to pressure changes inside the skull.

Heart: Muscular organ in the chest pumping the blood to all parts of the body at an average 70 beats a minute.

Heart attack: Layman's term for a coronary thrombosis, in which one of the arteries supplying the heart muscle becomes blocked (See Coronary Heart Disease).

Heartburn: Common term for a type of indigestion, marked by a burning sensation in the chest, in which the stomach's acid contents regurgitate into the OESOPHAGUS.

Heat Stroke: Disorder of the Body's temperature-control mechanisim, in which more heat is gained from the surroundings than is lost.

Hepatitis: Inflammation of the liver, usually as a result of virus infection, though poisonous chemicals, drugs and some other diseases can occasionally be the cause.

Hereditary disease: Any disorder produced by genes that an individual inherits from his parents

Heredity: The principle by which inborn features of an individual are passed on to his or her offspring, and so handed down through generations of a family.

Hermaphrodite: An individual whose body contains both male and female tissue.

Hernia: A condition in which the muscle or other covering tissue surrounding an organ weakens, and a portion of the organ bulges through

Herpes: Inflammation and blistering of the skin

Hiccup: A spasmodic, involuntary contraction of the DIAPHRAGM

Hip: Major weight bearing ball-and-socket joint formed where the head or ball of the FEMUR meets the socket of the PELVIS

Histamine: A chemical substance present in all tissues that plays a part in the body's defence mechanism and is responsible for inflammation and for the symptoms of ALLERGY.

Hives: A common name for urticaria, an allergic reaction of the skin.

HODGKIN's Disease: A cancer that affects lymph nodes, bone marrow, liver and spleen It is named ater Thomas Hodgkin (1798–1866) the English physician.

Homoeopathy: An unorthodox system of treatment based on the idea that 'like cures like'. It was founded in Germany in 1796 by Samuel Hahnemann (1755–1843).

Homoeostasis: The body's ability to maintain a stable internal balance of its various biological processes.

Hookworm disease: Serious tropical disease caused by parasitic worm, **Ancylostoma duodenale.**

Hormone: A chemical messenger that is carried around the body in minute quantities in the bloodstream.

Humerus: The bone extending from the shoulder to the elbow joint.

Hydrocephalus: Abnormal enlargement of the head, at birth, caused by an accumulation of cerebrospinal fluid in the brain cavities through a blockage of the normal circulation.

Hymen: A membrane, also called the maidenhead, at the entrance of the vagina in virgins.

Hypersensitivity: A condition in which a person reacts adversely to a substance which does not affect most people.

Hypertension: Abnormally high blood pressure. If the pressure rises persistently above normal a strain is thrown on the heart and the small blood vessels in the kidneys and the eyes are damaged.

Hypochondria: Morbid worry about health, often accompanied by a variety of symptoms that have no apparent physical cause

Hypophysis: See PITUITARY GLAND

Hypotension: Unusually low blood pressure Hypotension does not necessarily indicate disease, as some people naturally have low blood pressure.

Hypothalamus: Small, grey and pink complex of nerve cells situated just below the centre of the brain

Hypothermia: Lowering of the body temperature

Hysterectomy: Surgical removal of the uterus (womb).

I

Iatrogenic disease: Disease caused by medical treatment for another disease.

Ileum: The lower part of the small intestine, about 3.5 m (12 ft) in length, that leads into the large intestine. Digestion of fats and carbohydrates is completed in the ileum.

Immunisation: The artifical stimulation of resistance to an infectious disease by introducing an appropriate substance, often a mild from of the disease, into your body.

Impetigo: Skin inection, mainly on the face and limbs, particularly common in children and babies.

Incubation period: The period between infection by disease germs and the appearance of symptoms.

Indigestion: Layman's term for almost any upset in the digestive system including abdominal discomfort, nausea, an acid taste in the mouth and abnormal belching.

Infarction: The death of an area of tissue after its blood supply has been cut off by the blockage of an artery, usually the result of an embolus, or blood clot.

Infertility: The inability of a man or woman to procreate.

Inflammation: The reaction of tissues to injury, irritation or infection.

Influenza: Acute infectious disease caused by a number of virus.

Injection: The introduction of a fluid into the body, normally as part of medical investigation or treatment.

Inoculation: Intentional introduction of germs into the body (usually by injection) to produce a mild form of an infectious disease and therefore subsequent immunity against it.

Insulin: Hormone manufactured by the islets of Langerhans, a group of cells in the PANCREAS.

Interferon: A protein substance, produced by the body's cells in response to virus invasion, that inhibits the multiplication of viruses

Iris: The round, coloured part of the eye that surrounds the pupil

J

Jaundice: Yellowing of the skin and whites of the eyes due to the presence of the colouring matter of bile in the blood

Jaw: There are two jawbones. The upper one, the maxilla, is fixed and forms part of the skull, the lower bone, the mandible, is hinged to the maxilla by two identical hinge joints.

Jejunum: Middle section of the small INTESTINE.

Jet lag: Disturbance caused when the body's inbuilt 24-hour rhythm, known as the diurnal or circadian rhythm, gets out of phase with the natural rhythm of day and night.

K

Kala-azar: See Leishmaniasis.

Keloid: A tough, fibrous mass of scar tissue in the skin.

Keratin: A sulphur-containing protein that makes up the body's horny tissues, such as the fingernails and the surface layer of the hair and skin.

Kidney: The organ responsible for filtering waste products from the blood.

Knee: A hinge joint in the leg where the lower end of the FEMUR meets the top of TIBIA.

Kwashiorkor: A form of malnutrition caused by severe protein deficiency, which can occur in infants, usually after weaning.

Kyphosis: Curvature of the spine, producing a hump in the upper back — hence the name hunchback to describe the victim

L

Lachrymal gland: The tear gland, situated above and to the outer side of the eye, which produces the fluid that bathes the eyeballs and eyelids.

Lactation: Production of milk by mammary glands, or breasts.

Larynx: The voice box, situated at the root of the tongue and leading into the trachea, or windpipe.

Lead poisoning: Sources of lead poisoning, also known as plumbism, include leadbased paints, a number of industrial processes, and car fumes

Legionnaire's disease: See Pneumonia

Leishmaniasis: A disease caused by infection with protozoa, or parasitic micro organisms, called **Leishmania** which are transmitted by sandflies.

Leprosy: A chronic bacterial disease of the skin, nerves, muscles and bone

Lesion: A medical term describing an abnormality in tissue – for example, a wound, ulcer or tumour

Leucocyte: A white blood cell. Its role is to attack and digest foreign particles, including bacteria, in the blood.

Leucotomy: A surgical operation on the brain, also known as prefrontal lobotomy, in which the white nerve fibres in the fontal lobe are cut.

Leukaemia: A serious malignant disease of the blood-forming organs which results in an abnormal increase in white blood cells, many of them at a primitive stage of development.

Ligament: A band of fibrous tissue connecting bones or cartilages.

Liver: The largest gland in the body situated in the upper right part of the abdomen.

Lockjaw: See Tetanus

Long-sightedness: Inability to focus the eyes on near objects — for instance, words when reading.

Lumbago: Pain in the lumbar region, or lower part of the back.

Lung: The two lungs are spongy air-filled organs, supplied by the bronchi leading from the windpipe.

Lupus: A chronic, destructive skin condition, which has several forms.

Lymph: A transparent, yellowish fluid which arises in the tissues and travels in the lymphatic vessels

Lymphocyte: A variety of LEUCOCYTE, or white blood cell.

M

Malaria: A parasitic disease that causes chills, fever and chronic ill health.

Malnutrition: Poor nourishment of the body caused by lack of an essential item in the diet, such as protein, fat, carbohydrate or a vitamin.

Mastoid: Term, meaning, breast-shaped, usually applied to the mastoic process, a nipple-shaped bony protuberance of the temporal bone behind the ear.

Measles: Contagious virus disease causing skin rash, fever, cold-like symptoms, and sometimes complications such as pneumonia.

Melanin: Naturally occurring dark pigment, colouring various parts of the body such as the hair, the iris of the eye, and the skin

Membrane: Thin layer of tissue that covers body surface, divides a space or organ in the body, or lines a body cavity.

Meningitis: Inflammation of the meninges — the membranes that cover the brain and spinal cord

Menopause: The change of life characteristic when a woman's menstrual cycle become irregular and then stops altogether.

Menstruation: Normal periodic bleedin from the womb in women of child-bearin age.

Metabolism: The chemical processes occu ring in the body in which complex organi compounds (food) are broken down (catabo ism) with the release of energy — and simpl compounds are built up into tissues (anabo ism) using the previously released energy Oxygen is an essential ingredient of met bolism.

Metacarpal: One of the five long bones of th hand, between the wrist and fingers.

Metastasis: The spread of disease from on part of the body to another.

Metatarsal: One of the five long bones in th foot, joining the toes to the heel bones.

Migraine: Recurrent headache, varying i duration, frequency and severity, and some times preceded by aura, or warning sing such as blurred vision.

Mole: Pigmented spot in the skin. Moles ar usually brown, sometimes raised, and occ sionally have hair growing from them.

Mongolism: A congenital defect, also calle Down's syndrome, in which a child is mentall retarded and has slanted eyes, a broad, sho face, weak muscles and stubby fingers.

Moniliasis: Infection caused by a fungus. Th yeast-like fungus (usually **Candida albicans** is widespread.

Mononucleosis: Infectious disease, als known as glandular fever, thought to b caused by a virus.

Motion sickness: Nausea, and sometime vomiting, caused by motion.

Mucus: Thick, slimy liquid that lubricate mucous membranes.

Multiple sclerosis: Disorder, usually occu ring in young adults living in temperat climates, in which the linings of nerves in th brain and spinal cord are damaged.

Mumps: Acute contagious disease, usuall affecting children, in which the salivary gland become inflamed and swollen.

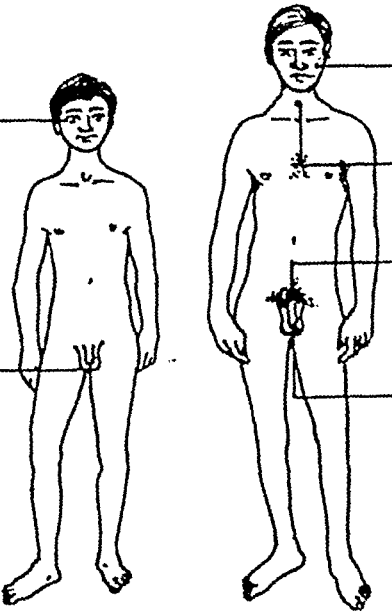
Muscle: Tissue responsible for movement i the body. The body contains about 650 mu cles made up of three types: skeletal, viscer and cardiac (heart).

Muscular dystrophy: Wasting disease of th muscles — usually those controlling mov

HOW A BOY GROWS INTO AN ADULT

Adolescence is the time of life between puberty and maturity, when a child develops into an adult. On an average it extends from the ages of 10 to 14 in girls, and from 12 to 17 in boys, although the ages of onset and completion vary widely. The physical and emotional changes of adolescence are initiated by the release of hormones from the sex glands (testes and ovaries) into the bloodstream.

In addition to the above effects, the male hormone testosterone stimulates physical growth, and is thought to cause the aggression and daring of adolescent boys.



Pituitary gland. Stimulated by hormones from the hypothalamus, the pituitary secretes hormones which enlarge the testes.

Testes. These glands produce sperm, and secrete the male sex hormone testosterone. This brings the changes of adolescence.

Skin. This becomes oily, due to the activity of the sebaceous glands.

Voice. This first breaks and then deepens, as larynx and vocal cords enlarge.

Pubic hair. The beginning of the growth of pubic hair is accompanied by hair in armpits. Hair on face and chest follows later.

Reproductive organs. Penis and testes enlarge. The auxiliary sex glands (prostate and Cowper's) mature and secrete the seminal fluid in which sperm are carried.

How a girl grows: See page 169

ment — thought to be predominantly hereditary in origin.

Myasthenia gravis: Chronic disorder, usually of young people, in which nerve transmissions to the muscles are disrupted because of chemical disturbances.

Myxoedema: Disorder caused by insufficient secretion of the hormone, thyroxine by the Thyroid glands.

N

Nails: Horny plates on the upper surface of the finger and toe ends

Narcolepsy: Abnormal inclination to fall asleep, usually due to brain damage in the Hypothalamus, the area near the front of the brain that controls the internal organs.

Narcotic: Drug that produces stupor, relieves pain, and often produces a feeling of well being.

Nausea: Feeling of sickness usually centred on the stomach

Necrosis: The death of the cells, tissues, or a localised portion of an organ.

Nephritis: Inflammation of the Kidneys also known as Bright's disease which usually occurs after a streptococcal infection elsewhere in the body.

Nerve: A bundle of specialised cells called neurons which transmit minute electro-chemical impulses between the brain and spinal cord, and other parts of the body.
Nervous system: The network of nerve cells that controls the body's responses to its environment and regulates its internal workings.
Neuralgia: Periodic attacks of severe pain that travel along a nerve.
Neuritis: Inflammation of a nerve or nerves, which may or may not produce pain (Neuralgia)
Nose: Organ of smell and one of the entrances to the respiratory system.
Nystagmus: Persistent involuntary movements of the eyes.

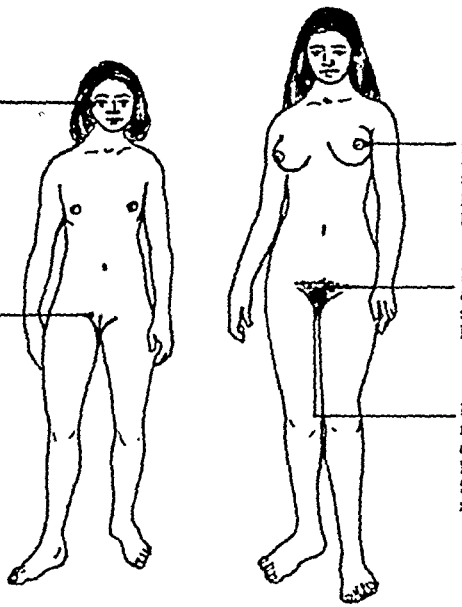
O

Obesity: Condition of being overweight due to excess accumulation of fat in the body.
Occupational disorder: Disease or disability occurring as a result of working conditions.
Oesophagus: The 24 cm (10 in) long muscular tube that carries food from the throat to the stomach
Oestrogen: A term describing female sex hormones. Oestrogens, which are produced mainly in the ovaries, give a woman her female characteristics.
Osteomyelitis: Inflammation of the bone marrow, commoner in children than in adults, caused by infection with bacteria
Osteopathy: A system of treating disease with massage and manipulation based on the theory that ill health is chiefly due to what is called 'structural derangement of bones'.
Ovary: The female sex gland, situated beside the womb
Ovulation: Release of a mature Ovum (egg cell) from the ovary. Usually one ovum is released every 28 days, at about the midpoint of the menstrual cycle
Ovum: The scientific term for the egg cell. Each ovum is a single female reproductive cell

P

Pacemaker: A small mass of special nerve tissue in the heart which sets the rate of the heart beat
Pain: Sensation which acts as a warning system about possible injury or illness
Palate: The roof of the mouth the hard part of which is formed by a bony partition separating the mouth and nasal cavities.
Palsy: Paralysis or constant shaking of a part of the body.
Pancreas: A 15 cm (6 in) long gland situated behind the stomach.
Pandemic: A disease, usually an infectious one, spread over several countries.
Paralysis: Loss or impairment of power or sensation in a part or parts of the body.
Parasympathetic nervous system: A division of the autonomic nervous system. It is responsible for returning the body to normal activity after an emergency.
Parathyroid gland: A hormone gland that controls the body's use of calcium and phosphorus.
Parkinsonism: Chronic disease that progressively affects the area of the brain controlling voluntary movement.
Patch test: A test in which a substance is injected into or placed in close contact with the skin to determine if a person is sensitive to it.
Pathogen: The scientific term for any micro-organism or substance that causes disease.
Pellagra: A nutritional disorder due to lack of the vitamin nicotinic acid, one of the B group and to deficiency in protein.
Pelvis: The body structure linking the spine to the legs.
Penis: The male genital organ, made up of a cylindrical mass of spongy tissue encased in loosely fitting skin
Peristalsis: A wave of contraction passing along a muscular tube such as the oesophagus intestine or Fallopian tube.
Peritoneum: Membrane lining the abdominal cavity which covers the stomach, intestines and other abdominal organs.
Phagocyte: Any cell that engulfs (and usually digests) micro-organisms, other cells or foreign matter.
Pharynx: The cavity, about 11.5 cm (4½ in) long, between the back of the mouth and the nasal passage above, and the gullet and larynx below.
Phenylketonuria: An inherited disorder of the body's metabolism that can affect mental ability
Phlebitis: Inflammation of vein, often accompanying thrombosis of the blood vessel.
Physiotherapy: Treatment of injury or disability with exercise, heat and massage

HOW A GIRL GROWS INTO AN ADULT



The balance between oestrogens from ovaries and androgens from adrenals determines the amount and distribution of body hair and the amount of fat around the breasts and hips.

Piles: See Haemorrhoids.
Pituitary gland: A small gland, also called the hypophysis, attached to the base of the brain.
Placebo: An inactive, non-harmful substance given to patients to satisfy their wish to be treated.
Plague: Any epidemic disease, though usually one that has a high death rate.
Plasma: The liquid constituent of blood that comprises 55% of its volume.
Plastic surgery: See Surgery.
Platelet: A minute, colourless cell in the blood that plays a major part in its clotting.
Pleura: A moist, double membrane that lines the inside of the chest cavity and the outside of each lung.
Pleurisy: Inflammation of the Pleura, often a complication of pneumonia.
Pneumoconiosis: The formation of fibrous tissues, (fibrosis) in the lungs caused by constant inhalation of dust.
Pneumonia: Acute inflammation of the lungs. Pneumonia may be caused by bacteria — usually pneumococci — or viruses
Pneumothorax: The presence in the chest of air or gas between the pleura
Poisoning: Some poisons are not necessarily harmful to the body in small amounts — alcohol, for example — but can havee an adverse, even fatal effect if too much is taken.
Poliomyelitis: An acute virus infection of the nervous system that often causes paralysis.
Polypus: A tumour growing from the membrane of various body structures such as the nose, bladder, womb, or intestine.
Presbyopia: Difficulty in focusing on near objects
Priapism: Painful erection of the penis. If persistent it is usually the result of thrombosis within the erectile tissue of the penis
Prolapse: Displacement of an organ from its normal position.
Prophylaxis: The use of medicine in preventing disease, rather than curing it.

Proprioception: The ability to sense how the body is moving and the positions of the parts of the body.
Prostaglandins: Naturally occurring substances in the body which affect the nervous system, blood flow in the kidneys and the action of a number of hormones.
Prostate gland: A gland in men which surrounds the bladder neck and the urethra.
Prosthesis: Artificial replacement for a part of the body.
Protein: A complex chemical compound present in every living cell.
Psoriasis: Generally mild but persistent skin disease that commonly fluctuates in severity.
Psychosomatic: A term used to describe disorders with both mental and physical features.
Puberty: The start of adolescence. It usually occurs at the age of 10 to 12 in girls and 12 to 14 in boys.
Puerperal fever: Once a common and often fatal complication in women after child-birth.
Pulse: The two-part impulse of the heart's contraction (systole) and relaxation (diastole) transmitted along the arteries.
Pupil: The hole in the centre of the iris which controls the amount of light entering the eye.
Pus: A thick yellow fluid made up of blood serum and the remains of bacteria phagocytes and damaged tissue, that forms when the body defends itself against bacterial invasion.
Pyloric stenosis: A blockage in the pylorus (the outlet of the stomach).

Q

Q fever: A mild, infectious rickettsial disease, so called because it was first identified in Queensland, Australia.
Quatriceps: The group of four muscles in the front of the thigh. When these contract the knee is straightened.
Quarantine: Isolation of a person with a communiable disease, or of a person who has been in contact with a communicable disease, to protect others against infection.

R

Rabies: An acute, usually fatal, infectious disease of the central nervous system caused by a virus.
Radiation sickness: The effects on the body of over-exposure to high energy radiation, such as gamma rays, nuclear radiation or X-rays.
Radius: The shorter of the two bones in the forearm, situated on the same side as the thumb.
Rash: A transient eruption of the skin comprising a red area or areas, often with many small spots.
Raynaud's disease: An arterial disease affecting the feet and hands, in which the blood supply ceases temporarily, causing numbness followed by pain. The disease was first described by a Frenchman, Maurice Raynaud (1834-81).
Reflex: An automatic reaction of the body to a stimulus.
Reproduction: See Sexual Reproduction.
Respiration: Breathing, or external respiration, is the intake and expulsion of air to and from the lungs during which oxygen is taken up by the blood and carbon dioxide waste returned to the air.
Retina: The light-sensitive zone at the back of the eye.
Rhesus (Rh) factor: A complex substance present on the surface of red blood cells in most people. People with the Rh factor are described as Rh-positive and those without Rh-negative.
Rheumatic fever: A disease caused by toxin (poison) produced in the body by streptococcus bacteria.
Rheumatism: A term applied to disorders in which there is pain in the joints, bones and their supporting tissues.
Rheumatoid arthritis: See Arthritis.
Rhinitis: Inflammation and swelling of the mucous membrane in the nose, causing a running nose.
Rib: One of the curved bones that forms the framework of the chest and protects the organs in the chest cavity.
Rickets: A softening of the bones in children due to a lack of vitamin D in the diet and insufficient sunlight for the manufacture of the vitamin in the skin.
Rickettsial diseases: Illness caused by a group of bacteria-like micro-organisms, but of smaller size.
Ringworm: A highly contagious fungus infection of the skin, known medically as tinea.
Rosacea: A skin disease of unknown cause that affects the face.
Rubella: A contagious virus disease, also called German measles, that usually occurs in periodic epidemics.

Rupture: A hernia or break or tear in an organ or tissue.

S

St. Anthony's fire: A common name for an inflamed skin condition once thought to be Erysipelas, but now known to be a symptom of ergotism.

St. Vitus's dance: See Chorea.

Saliva: A mucous fluid secreted by the three pairs of salivary glands (parotid, in the cheek; sublingual, under the tongue; submandibular, below the jaw).

Salmonellosis: A variety of Food Poisoning caused by salmonella bacteria.

Sarcoma: A cancer, or malignant growth, in the body's connective tissue, such as muscle, cartilage or bone.

Scabies: A highly contagious skin disease caused by the itch mite **Sarcoptes scabiei.**

Scapula: The triangular flat bone at the back of the shoulder, commonly called the shoulder blade.

Scarlet fever: An infectious disease usually of childhood, characterised by a widespread, bright red rash accompanied by sore throat and fever.

Sciatica: Pain in the sciatic nerves, the two largest nerves in the body which run from the lower spine to the legs.

Scoliosis: Sideways curvature of the spine

Scrotum: The pouch of skin that hangs below the base of the penis.

Scurvy: A deficiency disease caused by a lack of vitamin C (ascorbic acid) in the diet.

Semen: A thick white fluid discharged from the penis during an ejaculation.

Semicircular canals: The organs of balance, situated in the middle ear.

Senility: Loss of mental or physical capabilities that sometimes accompanies old age.

Septicaemia: A serious condition, also known as blood poisoning, in which bacteria or other germs multiply in the blood and spread throughout the body.

Serum: The clear yellowish fluid that remains in the blood after clotting occurs.

Sex Hormones: The hormones responsible for the development of secondary sexual characteristics in adolescence and for controlling sexual activity, including ovulation

Sexual reproduction: The procreation of new individuals to ensure continuation of the species.

Shingles: See Herpes.

Shock: A collection of signs and symptoms known to doctors as the shock syndrome resulting from the failure or collapse of the circulatory system.

Short-sightedness: A defect of vision also known as myopia, in which an individual has difficulty in clearly focusing on distant objects.

Shoulder: The ball-and-socket joint between the humerus (upper arm bone) and the Scapula (shoulder blade).

Siamese twins: Identical twins who are born joined together, generally at the head, chest or hip.

Sinus: A hollow cavity, usually in bone. The term is generally taken to refer to the four paranasal sinuses in the skull — the frontal (forehead), maxillary (cheekbones), sphenoidal (back of the nose), and ethmoidal (below and behind the frontal sinuses.

Skeleton: The bony framework that supports the body and, with its many joints, provides the chasis to which the body's voluntary or skeletal muscles are attached.

Skin: The body's waterproof, impermeable protective covering, sometimes called the integument.

Skull: The bony framework of the head. The skull, or cranium, contains the brain and holds the organs of hearing, sight, smell and taste.

Sleep: A state in which the conscious mind ceases to function.

Sleeping sickness: A widespread disease of tropical Africa, caused by minute protozoan parasites called trypanosomes

Slipped disc: The bones of the spine (vertebrae) are separated and cushioned by a ring of cartilage with a soft centre called an intervertebral disc — there are 23 altogether. Displacement of the intervetabral disc is called slipped disc and this may cause back ache

Smallpox: Highly contagious virus disease, once a major cause of death throughout the world but now officially declared eliminated after worldwide vaccination programme by the World Health Organisation

Smell and taste: The organs of smell and taste work together to detect the flavour of food.

Snoring: Noisy vibration of the soft plate, usually caused by a person sleeping with the mouth open

Solar plexus: Term used to describe a large concentration (plexus) of nerve connections

in the upper abdomen that forms part of the sympathetic nervous system.

Spastic: Term describing a condition in which the muscles are stiff and movements awkward.

Spermatozoon: The scientific name for the male reproductive cell or sperm cell.

Sphincter: A circle of muscle fibres usually situated at the entrance or exit of an organ.

Spina bifida: A birth defect in which the bones of the spinal column fail to develop properly, so that the spinal cord — the main nerve of the body — is imperfectly protected.

Spinal cord: A soft, thick cord of nerve tissue about 45 cm (18 in) long, running from the brain through the seven cervical and 12 thoracic vertebrae to the first lumbar vertebra

Spleen: A pulpy, blood-filled, oblong organ situated in the upper left part of the abdominal cavity.

Sprue: A chronic disease of the small intestine, in which fats and certain vitamins are not properly absorbed by the body

Sputum: Matter, mainly composed of mucus, produced in the lungs and air passages

Squint: See Strabismus.

Stenosis: Constriction of a passageway, duct, or opening in the body

Sterility: In general terms the inability to produce children

Steroid: A group name for a large number of naturally occurring substances with a similar chemical structure

Stomach: An organ of digestion and a storage area for food, with a normal capacity of about 1.5 litres (2½ pints) in an adult.

Strabismus: A condition in which both eyes cannot focus on the same spot at the same time, commonly termed a squint

Stroke: Damage to the brains as a result of blockage of an artery (thrombosis) or cerebral haemorrhage

Stye: Inflammation of the eyelid caused by infection of one or more eyelash roots or of the sebaceous glands

Sulphonamides: A group of drugs, which, when they were introduced in the 1930's provided the first effective treatment for a number of bacterial diseases

Sunburn: Damage to the skin by over exposure to the sun's radiation

Sunstroke: A severe disturbance of the body's cooling system after over-exposure to the sun

Suppository: A small cylinder of cocoa butter or glycerine made for insertion into the rectum or vagina.

Surgery: The treatment of disease, injury or deformity by operation or manipulation usually using, some form of anaesthesia.

Sweat: The fluid secreted by the skin's sweat glands, sweat or perspiration is more than 99% water.

Sympathetic nervous system: Part of the autonomic nervous system, which controls involuntary movements of internal organs.

Syphilis: The most dangerous of the venereal diseases, caused by a spiral-shaped bacterium (spirochaete) called **Treponema pallidum**

Systole: The rhythmic contraction of the heart which pumps blood into the circulatory system.

T

Tachycardia: Excessively rapid heart-beat usually above 100 a minute, as compared with the normal 65-80 a minute.

Tapeworm: A parasitic worm that lives in the intestines of its host.

Teeth: Teeth grow from the maxilla and mandible (the upper and lower jawbones) and are supported by thickened parts of these bones called alveoli.

Temperature: The normal human body temperature is about 37°C (98.6°F) although for many people the normal is slightly higher or lower than this.

Tendon: Strong, elastic tissue that connects a muscle to a bone.

Testes: The two male sex glands (gonads) situated in the scrotum.

Tetanus: A serious infectious disease causing spasms of the voluntary muscles.

Tetany: Cramp or convulsions caused by a lack of calcium in the blood, which irritates nerve tissue.

Thalamus: A collection of nervous tissue consisting of two egg-shaped bodies lying deep in the brain between the two cerebral hemispheres.

Thorax: The chest, or thoracic cavity, containing the heart, lungs and oesophagus.

Thrombosis: The blockage of a blood vessel by a thrombus (blood clot).

Thrush: See monilasis.

Thymus: An endocrine gland lying beneath the breastbone near the heart.

Thyroid gland: An endocrine gland lying on either side of the windpipe below the larynx

Tibia: The shinbone, the main bone of the leg, between the knee and ankle joints.
Tic: A persistent twitching of muscles, usually those in the face.
Tinea: See Ringworm.
Tinnitus: Noises in the ear, often of a ringing nature.
Tissue: A group of cells of broadly similar type together with the material between the cells.
Tongue: The upper surface of the tongue has several thousand taste buds, made up of clusters of nerve endings which can detect four different tastes: sweet, sour, salt and bitter.
Tonsillitis: Inflammation of the tonsils. Tonsillitis is a symptom of several infectious diseases ranging from the sore throat of a cold to Diphtheria.
Tonsils: Two flat glands of lymphatic tissue at the back of the throat.
Toxaemia: The medical term for the presence of any poisonous material in the circulating blood.
Toxin: A poisonous substance produced in the body by bacteria, such as staphylococci or diphtheria.
Toxoid: A toxin which, having been treated to neutralise its dangerous effect, still retains the capacity to stimulate the body to produce antibodies (See antibody, antigen).
Trachea: The windpipe: a cartilaginous tube that extends about 23 cm (9 in) from the larynx before dividing into the left and right bronchi.
Trachoma: An infectious disease of the eyes widespread in the tropics.
Transplant Surgery: The replacement of diseased or injured organs or tissues by healthy ones.
Trauma: An injury or wound. There are two types of trauma: physical, such as a bruise, cut or fracture; and emotional when shock may make a profund impression on the mind.
Trichinosis: A parasitic disease caused by a small roundworm, usually caught by eating uncooked pork.
Trichomonas Vaginalis: A protozoan parasite sometimes found in the vagina which may cause inflammation and discharge.
Tuberculosis: An infectious disease caused by the bacterium Mycobacterium tuberculosis.
Tumour: A swelling on or in the body. Some tumours are simply due to an accumulation of fluid. Other tumours are due to an abnormal growth of cells.
Typhoid fever: A serious, sometimes fatal, infectious disease caused by a variety of salmonella bacteria.
Typhus: A group of infectious diseases caused by Rickettsiae micro-organisms (see Rickettsial Diseases).

U

Ulcer: An inflamed, open sore on the skin or on the mucous membrane lining a body cavity.
Ulna: The larger of the two bones in the forearm.
Ultrasonography: The location, identification and measurement of deep structures in the body by measuring the reflection or transmission of high frequency sound waves (ultrasound).
Umbilical cord: Structure which connects the foetus to the placenta in the mother's womb.
Uraemia: Poisoning of the blood resulting from the presence of waste products that are normally filtered off by the kidneys and excreted in the urine.
Ureter: One of the two muscular tubes that carry urine from the kidneys to the bladder.
Urethra: The tube through which urine leaves the bladder and is discharged from the body.
Urine: A yellowish liquid produced in the kidneys. Mainly composed of water, the urine also contains the body's waste products filtered from the blood by the kidneys.
Urogenital system: The reproductive and urinary systems.

V

Vaccination: The introduction of a vaccine into the body to produce immunity to an infectious disease, such as smallpox.
Vagina: Muscular passage, lined with mucous membrane, that extends 10-12 cm (4-5 in) from the vulva or female external genital organs, to the cervix, or neck of the womb.
Varicose vein: Dilated and kinked blood vessel near the skin surface usually occurring in the leg.
Vas Deferens: The tube along which spermatozoa travel from the testes to the urethra in the penis.
Vein: Blood vessel that returns blood to the heart from all parts of the body.

Vena Cava: The body's main vein, returning blood from all over the body to the right auricle of the heart.
Venereal disease: Disease transmitted by sexual contact.

Verruca: Medical term for a wart, a small growth formed on the skin and caused by a virus.
Vertebra: One of the 33 bones of the spine.
Vertigo: Severe dizziness, in which the sufferer may feel that he is being whirled about.
Virus disease: Disease caused by any of a great variety of very small, living particles

Vitamins: A group of unrelated organic substances essential in minute quantities for the normal functioning of the body's chemical processes.
Vulva: The external female genital organ. It surrounds the opening of the vagina, which in virgins is usually partly covered by a thin membrane, the hymen

W

Wart: See Verruca
Whitlow: An inflammation, not usually serious, of the tissues round the base of a fingernail or toenail, known medically as paronychia.
Whooping cough: An acute, contagious infection of the upper respiratory passages and bronchial tubes.

Womb: Hollow, muscular, pear-shaped organ in the pelvis of a woman in which during pregnancy, the growing foetus is protected and nourished until birth.

X

Xerophthalmia: An eye disease caused by a lack of vitamin A in the diet.
X-rays: A type of radiation similar to radio waves or light rays, X-rays have very short wavelengths, can penetrate soft tissues and, though invisible, can register on photographic film

Y

Yaws: Disease caused by spirochaete bacteria.
Yellow fever: A virus disease transmitted by forest-living mosquitoes in parts of Africa and South Ammerica.

BODY REPAIR IN 21st CENTURY

Like a repaired car, the human body of 2000 will be made up of replaceable parts. Heart, lungs, kidney, pancreas, blood vessels, ears and may be eyes will commonly be replaced.

It looks like an ordinary microchip, but it may have a life of its own. Someday it could end up inside somebody's brain.

Scientists from the U.S. National Institute of Mental Health are growing animal tissue on a silicon chip in the hope that the two eventually will connect and begin to interact. Sometime, probably well into the next century, microchips may be implanted in human brains, where they will link up with undamaged nerve cells and take over functions destroyed by injury or disease.

Other medical scientists are wrestling with an age-old question: Can human life be significantly prolonged?

Researchers on aging say that if cancer and heart ailments magically disappeared, the average life span would increase by only a few years. These scientists are trying to retard the aging process itself, extending the years of robust health toward 100.

One theory is that aging is caused by the buildup of metabolism's toxic byproducts and could be slowed by boosting the body's protective enzymes.

A formula for extended youth may never be found. But by 2000, many of the human body's remaining secrets will have been unlocked. New discoveries are occurring almost daily, especially in molecular biology — the study of the body's functions at the basic genetic level. The advances will make today's medicine look primitive.

Technology, some of it extremely costly to operate, will produce unprecedented tools for diagnosing and treating disease. New body scanners, especially the magnetic resonance imager, will produce photograph-like pictures that reveal far more than today's CAT scanners, without using radiation.

Tiny pumps implanted in the body will take over from ailing organs, for example, shooting out insulin for a malfunctioning pancreas. Lasers will take over most work now done by scalpels, perhaps even making coronary bypass surgery obsolete.

Robots will work alongside some surgeons "For certain functions, robots will be more accurate than people, and they'll take care of repetitive tasks too, such as suction and retraction," says Dr. Donlin Long, chairman of neurosurgery at the John Hopkins University Medical School.

Teleradiology will convert future accident victims' X-rays to digits and send them by telephone to specialists for instant analysis. Doctors will turn to computer terminals, not musty reference books, for guidance on symptoms, treatments and prescriptions. One futurist predicts that within 50 years, many doctors will be replaced by technicians operating well-programmed computers.

Meanwhile, health specialists say, more physicians will cease being repairmen. By 2000, people may spend as much time and money on prevention of illness as on treatment, and look to changes in lifestyle, not technology, for their well-being.

"We have it within ourselves to control our cardiac destiny," says Dr. Robert I. Levy of Columbia University. He believes that education about smoking and diet, especially cholesterol, will help bring heart disease down.

A new generation of drugs will aim at preventing and curing disease rather than treating symptoms. Made more by biologists and computer scientists than chemists, these drugs will be cloned from the body's own genes, hormones, and enzymes and will mimic nature to cure ills. The next century also will see a new wave of vaccines to prevent such illnesses as chickenpox, malaria and hepatitis — and even tooth decay.

Viruses, which cause a range of illness including the common cold, herpes, and AIDS, will remain a challenge.

Areas of medical research with great significance for the future include the brain, the mind, genetics, early warning of predisposition to certain diseases, cancer and artificial organs.

"As heart disease and cancer become more treatable, the major health problem over the next 50 years will be degenerative diseases the brain," says Dr. Richard Jed Wyatt, chief neuropsychiatry at the National Institute Mental Health. Some experts expect cases Alzheimer's disease, a type of dementia, triple in the next 75 years as the populatio ages.

But an explosion of research on the brai one of the last frontiers of medical scienc will offer eventual cures for some of today most feared disorders. For example, a rece discovery that the brain has at least 50 an perhaps hundreds of neurotransmitters – chemicals that direct much of its function – probably will lead to new treatments or cur for Parkinson's disease, epilepsy, schizophr nia, chronic pain, and even Alzheimer's di ease.

The workings of the mind, once thoug intangible and invisible, will be traced wi new scanners. "We're in the process of demy tifying the brain. By the year 2000 we ma know exactly what is happening, say, in m brain while I'm talking to you", says D Katherine Bick, deputy director of the Nation Institute of Neurological and Communicati Disorders and Stroke.

Future drugs will literally refresh ou memories. "Using certain drugs, we now ca make animals remember better, and I believ that before long, we'll help humans wit memory problems," forecasts Dr. James McGaugh, director of the Centre for th Neurobiology of Learning at the University California, Irvine. Several U.S. drug manufa turers already are researching these "cogniti enhancers."

One of the most ambitious areas of brai research is an effort to make a damaged brai "whole" through special surgery.

Wyatt has found that rats suffering symp toms of Parkinson's disease — a deficiency of neurotransmitter — can recover if affecte brain tissue is surgically replaced by new cell If the process works in thesus monkeys, Wya believes, it eventually should work in human

Gene by gene, scientists are mapping th human body. The number of identified gene is roughly doubling every two years, an although the rate will slow many of th significant ones will have been located by th turn of the century. Last year, for exampl scientists found the gene that corresponds t the fatal Huntington's disease

About 3,500 illnesses, including many forms of mental retardation, have been linked to genetic defects, and future scientists for the first time may be able to treat them. Beyond that, genetic mapping will help explain a broad range of biological functions, such as the process that causes chromosomes to rearrange themselves and trigger cancer, says one of the mappers, Dr. Frank Ruddle of Yale University

Although ethical questions loom, the new knowledge should yield advances for future health care, among them genetic vaccines and drugs, prenatal screening, and early warnings of predisposition to certain adult diseases, even those caused by a combination of hereditary traits.

"Now, for instance, we have to tell the whole population to cut down on fats," says Dr. Arno G Motulsky, director of the Centre for Inherited Diseases at the University of Washington, Seattle. "When we can detect genetic predisposition in heart disease, we'll be able to target those people at risk, and the rest may be able to eat as much fat as they want."

If current animal studies succeed, 21st-century doctors may practise "gene therapy," inserting normal genes to correct mistakes in patients' genetic makeup. In the next year or two, the first trial of human gene therapy will be conducted on ADA deficiency, a life-threatening enzyme shortage.

"If gene therapy works with ADA, any hereditary disease could theoretically be treated with gene therapy," says Dr. W. French Anderson, chief of the National Heart, Lung, and Blood Institute's molecular hematology laboratory.

Eventually the treatment could be simple: "A visiting nurse could cure sickle-cell anemia in a population with injections into the bloodstream", Anderson says. Like tuberculosis and polio, most genetic disorders could be virtually banished

Ethical concerns envelop gene therapy, especially the question of using it to change future offspring and "enhancement gene engineering" — insertion of a gene to improve a trait such as intelligence. But such tampering is unlikely, even in the distant future.

This complex disease of cancer will continue to kill and cripple us in the next century, but it will be more curable. The U.S. National Cancer Institute foresees that if current re search strategies succeed, cure rates shoul rise to an average of 75 per cent by the yea 2000, up from about 50 per cent today.

Research is progressing in dozens of direc tions. Scientists now know that some cancer are triggered by oncogenes, normal genes tha turn malignant. They're starting to attac cancer with cells called monoclonal ant bodies; these single-purpose molecules, arme with radioactive isotopes or drugs, can see out and destroy a tumor.

Other pioneer treatments seek to explo the body's natural defences against malignan cies. Research on immune substances know as tumor necrosis factor, which destroy cancerous cells while leaving normal cell intact; may lead to radical new approaches t cancer therapy.

Combinations of surgery, radiation, an chemotherapy, commonly used today, wi continue to be staples of future cancer trea ment, the specialists say, but they will be mor refined and humane.

"One of the main advances over the next 1 years will be a better way to determine wh will respond to chemotherapy and wh won't," predicts Dr. Bruce A. Chabner of th National Cancer Institute.

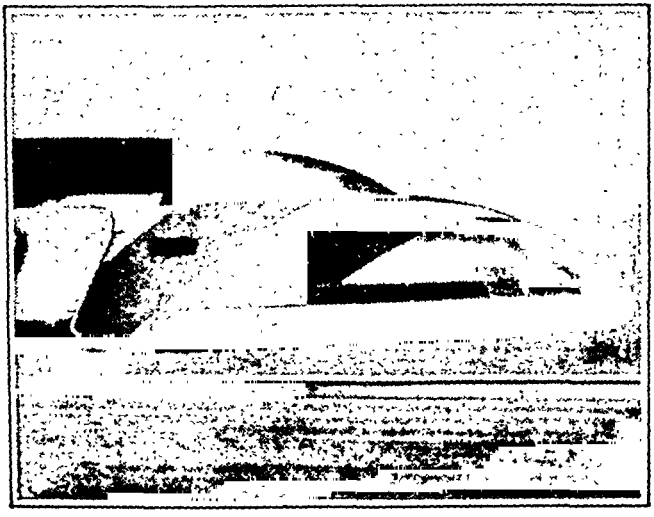
By 2000, some cancers, especially breast an ovarian should be highly curable, but lun cancer will remain a major killer. And th AIDS virus, which can lead to malignancies, i a worrisome question mark in future cance rates, Chabner says.

Like a repaired — car, the human body c 2000 will be made up of replaceable part "There is no organ which won't be replaced i the future." says Dr. Pierre Galletti, who ha developed artificial organs at Brown Un versity.

Parts that will commonly be replaced in th future include heart, lungs, kidney, pancreas blood vessels, ears, and maybe eyes. Eventua ly, Galletti says, man-made parts will replac the liver and even sections of the brain an nervous system.

Tomorrow's artificial organs will be made o more sophisticated materials than today's "Bioartificial organs," hybrid of natural trans plants and artificial parts, may help stop tissu rejection by encapsulating donor material i plastic.

—NATIONAL GEOGRAPHI



SPECIAL FEATURE

SUPER CONDUCTIVITY: WHO WILL PULL THE MAGIC WIRE FIRST?

Conductors have eaten up roughly 50 per cent of all the power produced all over the world so far. This is sheer waste. Scientists and engineers have always wondered whether carriers of electric current could not be made superconductive so that this waste is avoided. Recent discoveries indicate this is indeed possible. Frantic efforts are afoot to pull the magic wire first.

Once realised this will mean a technological revolution with a potential impact as great as the industrial revolution or probably even greater. Besides saving phenomenal amounts of electric energy, superconductivity opens up amazing possibilities like bullet trains that move at several hundreds of kilometres per hour on cushions of magnetism, high-power small-size electric cars, computers miniaturised many times more despite being many times more powerful, nuclear reactors safer

and yielding many times more energy (from nuclear fusion) and diagnostic aids of extra-dimensions though dirt-cheap.

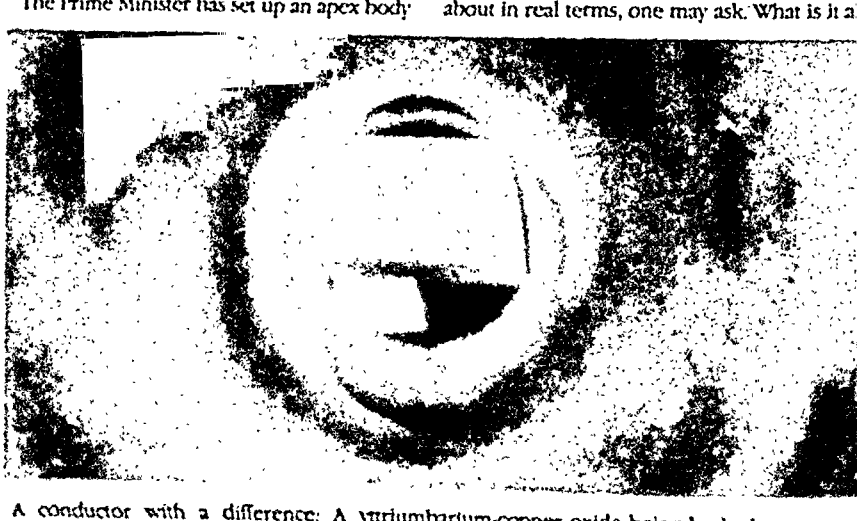
In short, this is a whole new world opening up. Superconductivity has therefore become a *magic word overnight*. The entire world has woken up to it with a jerk. Suddenly, everything is at stake. If one does not get in front, all leads in technology achieved so far are gone with the wind. So, research in the field has become a mad scramble, different from the usual pattern of an orderly race. Not without sufficient reason, however. One who gets there first will win the key to change the world and shape the future of mankind.

India, significantly, has been so far on the frontline in this close race. The whole world is watching breathless. Will a developing nation have the stamina to keep the lead to the ribbon? Will the usual winners overtake? What are the odds in real terms? How far are one's tips reliable? In India there are various centres and groups working in the area. The Indian Institute of Technology, Madras, the Indian Institute of Science, Bangalore, Bhabha Atomic Research Centre, Bombay, and the National Physical Laboratory, Delhi, have now been joined by many a laboratory of the Council of Scientific and Industrial Research (CSIR) and some university centres.

The Prime Minister has set up an apex body under his chairmanship to co-ordinate and promote the work on top priority basis. Of the body are all the ministers concerned secretaries of science and technology depart ments, chaiman of the University Grants Com mission and members of the Science Advisor Council to the Prime Minister. According t Dr. Vasant Gowariker, Science and Technolog Department secretary, the setting up of a bod like this underlines the "political commitmer to this emerging area of science and tech nology".

Also formed by the Prime Minister is Programme Management Body headed b Prof. C. N. R. Rao, chairman of the Scienc Advisory Council to him. The PMB has execu tive and financial powers to pursue th programme to its well-defined fruition. Apar from the Finance Secretary, the PMB include eminent scientists, technologists and heads o scientific agencies in various parts of th country. Moreover, India's eminent physicis Dr M. G. K. Menon has been given th responsibility of co-ordination. He has th unenviable job of avoiding duplication, back biting, inter-group information black-out an functional bonlenecks besides providing in centives and a healthy atmosphere.

Developed nations are pushing research i this area at a feverish pace. What is all the fus about in real terms, one may ask. What is it a



A conductor with a difference: A yttriumbarium-copper oxide being backed to super-conduct at 107K

about? Very simple, in fact, for superconductivity is what the very word means: electrical conduction without any resistance on the part of the wire carrying the current. What is put in at one and is obtained in full at the other without an iota of line-loss.

The crucial question is what makes the current-carriers of today resistant. Temperature has been known to be one factor contributing to carrier-resistance. The only way to make today's carriers of electricity superconductive is to lower their temperature to the rock bottom of what is known as Absolute Zero or zero degree Kelvin which is minus 273°C.

Conductors cooled to this frigid limit lose all resistance to the flow of current through them. But maintaining the lowest temperature on Earth is very expensive and difficult. This was why superconductivity remained a mere curiosity in research labs though it was discovered way back, at the beginning of this century.

Transition temperature for superconductivity.

Element	Tc (K)
Al	1.196
Cd	0.56
Ga	1.091
Hf	0.09
Hg	4.15
In	3.40
Ir	0.14
La	4.9
Mo	0.92
Nb	9.26
Os	0.655
Pa	1.4
Pb	7.19
Re	1.698
Ru	0.49
Sn	3.72
Ta	4.48
Tc	7.77
Th	1.368
Ti	0.39
Tl	2.39
U	0.68
V	5.30
W	0.012
Zn	0.875
Zr	0.65

Prof. C. N. R. Rao: Leading Indian Researcher

It was Heike Kamerlingh Onnes, a Dutch physicist, who discovered superconductivity. The year was 1911. He was studying the variation of the electrical resistance of mercury with temperature. At temperatures within a few degrees of absolute zero, the resistance dropped sharply to an unmeasurably small value. This transition to superconductivity, however, was found to involve more than simply very high or infinite electrical conductivity. In 1933, W. Meissner and R. Ochsenfeld discovered that a superconductor placed in a not-too large magnetic field expelled the field from the interior of the conductor. Thus, further possibilities were thrown open.

But superconductivity could be established only at the low temperature of 4.2 K. This is the point at which helium gas liquefies. Superconducting devices had to be immersed in liquid helium in tightly sealed and heavily insulated containers. The cost was prohibitive. This limited the use of this technology to a few devices — a Japanese prototype of a magnetically levitated train, some particle accelerators,

a few magnetic resonance imaging machines and costly magnetic 'bottles' in fusion research centres.

It was in this context that the floodgates opened during the past year. Researchers stumbled upon an unusual class of chemical compounds. These too had to be cooled to become superconductive but only to temperatures in the vicinity of 100 K. Liquid helium could now be replaced by liquid nitrogen which is cheaper These new substances were found to be capable of generating intense magnetic fields too

The materials originally known to be superconductive at low temperatures (lead, tin, mercury etc) were known to lose this capability as soon as enough current was flowing through them to generate significant magnetic fields but the ceramics, the alloys of oxides of niobium and titanium, kept their superconductivity despite strong magnetic fields.

But do what they may, till 1973, scientists could not raise the superconducting temperature beyond 23 K. It was Karl Alex Muller of IBM's Zurich laboratory who decided to try metallic oxides known as ceramics Ceramics are very poor conductors at room temperatures making them fit for use as electrical insulators Muller raised the transition temperature to 35 K But the world of physics laughed at him, though not everybody The Japanese and the Chinese took him very seriously.

They repeated his experiments and the temperature rose to 38 K Paul C W. Chu of Houston University, who has been studying superconducting materials since 1955, took up the challenge. He pressurised a superconducting material and found that the transition temperature could be raised to 52 K. But he found that was the limit. At pressures greater than 10 to 12 thousand times normal atmospheric pressure, the molecular structure of the superconducting material got damaged. More pressure did no good.

Paul Chu: a Pioneer in the field.

Cleverly, Chu replaced the barium in the sample with strontium which is smaller in atomic structure. This was to reduce the size of the compound's molecules from within. The transition temperature could be upped by two more degrees. But when he tried calcium, an element with still smaller atoms, the transition temperature dropped. Chu then tried lanthanum. And one of Chu's graduate students, Maw-Kuen Wu, replaced lanthanum with another rare earth element, yttrium.

Rare earths are not really very rare. For example, yttrium is more abundant than lead. The word rare, in this case, is a misnomer. India and China are two countries having the world's largest rare earth deposits. Wu and Chu thus raised the temperature to 93 K first and to 98 K a few days later.

It was at this stage that Indian scientists first reproduced the Houston results and then reported improvements. Many other variations of the compound used by Chu and Wu were tried out. And this is still going on.

Japan has quickly recognised the commercial potential of the breakthrough. Its ministry of international trade and industry plans to subsidise private sector research. Companies in Japan have already made considerable progress in superconductors.

In America too, annual government funding for superconductivity research has been doubled and a computer data bank is being created to serve as up-to-date research reference for scientists in the field. Also, a bill is on its way to form a national commission to coordinate research and development in this area.

Reliable superconductivity at room temperature is expected to be achieved any minute now When this happens, it will be a major event of the century, like the discovery of transistors during the 1950s And scientists at the National Physical Laboratory claim to have achieved room temperature superconductivity under laboratory conditions

The many splendoured genie

The recent hotting up of the superconductivity race has filled the air with speculations about its applications. Transformation of present-day technologies is only part of the future that is envisioned. Some are dreaming of an entirely new kind of world, once superconductivity becomes an everyday reality. And Indians are no exception.

For countries like India especially, which are yet to enter the high-tech phase, the new technology will mean a bonanza. India, for instance, has no major capital investment existing in areas like thermonuclear research, particle accelerators, MRI machines, superfast transport systems, installed supercomputer capacity, high capacity power stations and power storage systems. Many parts of the country are yet to be covered by electrification. Therefore, culturing of the new superconductor technology will not be deterred by what is known as the "sunk-capital drag". Developed nations, on the other hand, are affected by this drag as they have mountains of funds already invested on existing technologies.

If India wins the race in good time, there is a whole world to be won. Indications are that superconducting technology is of low cost both in terms of research and application. The most important raw material will be the rare earths which India possesses in enviable measure, sufficient to last from now to eternity.

A lot can be earned — and not only in terms of money — from saving of energy and use of non-polluting alternative sources of power. If all the wastage suffered in transmission of electrical power is done away with, it would amount to doubling of existing power production capacity. If electricity could be sent through superconducting cables not an iota of power would be lost and the needs of an entire city could be met through a handful of underground cables.

A magnet levitating

India is on the brink of the computer era. With the coming of superconductivity, all of today's computers will go obsolete. This is because the current passing through the circuits of any computer today, however small, produces heat and this limits the proximity of circuits to each other and therefore the size of the computer. Today's computers, however small, cannot operate without air vents or internal fans to dissipate internal heat. Further miniaturisation will mean greater freedom from trouble and better functional capabilities.

In the field of electronics there will be breath-taking developments. Circuits not viable so far due to heating problems, switching gear needing liquid helium temperatures, high resolution radars, transmitters limited in strength by heating problems — many such applications will be revolutionised by superconductivity. It will be in fact a totally new brand of electronics.

The method of research is almost akin to that of the alchemists of old. Ceramics of various kinds are being tried in various combinations. Trial-and-error is the method. In India too all the groups are adopting more or less the same method. This resembles a blind man feeling his way around. Why so, one may ask. Is it not possible to mix the right stuff in right measure and achieve the desired results?

Unfortunately, scientists are not very certain what exactly is the physical cause of superconductivity. Of course, there is a theory that explains the how and why of it. It is known as the BCS theory. BCS because it was discovered by A. J. Bardeen, Leon Cupper and Robert Schrieffer who shared the 1972 Nobel Prize for physics for this theory. But the theory does not explain superconductivity at higher temperatures.

Atoms are known to have a tiny nucleus consisting of positively charged protons and chargeless neutrons. Negatively charged electrons in concentric shells whirl round the nucleus. Every electron shell has a fixed number of permissible occupancy. No shell can contain more than its permitted number but any shell can have less than its full quota.

In good conductors of electricity in general, the outer shell has a number of slots empty, making the electrons in that shell not bound very tight compared to their counterparts in the inner shells. When electric current moves, loose electrons go on filling in and getting out of the empty slots. Atoms of insulators, say, like rubber, have their outer shells completely filled.

Even in a good conductor, when electrons move from atom to atom as a part of the flow of current, the electrons collide with one another, thus losing part of their energy in the form of heat. In superconductivity, these collisions are avoided, says the BCS theory. A free way is made available for the movement of electrons.

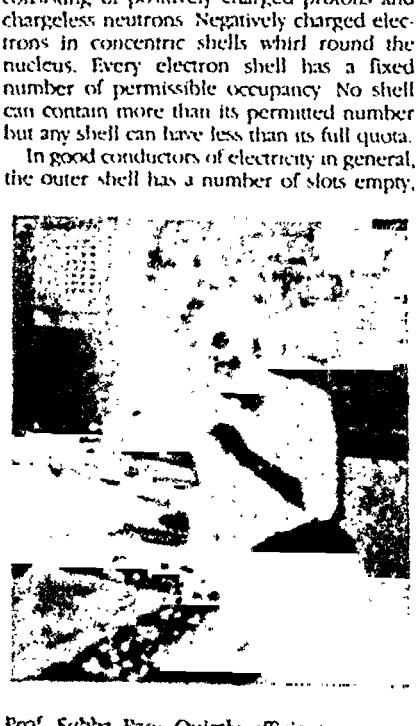
"You can think of it as electrons condensing into new states," says Bardeen, "a state involving the pairing of electrons and a kind of ground discipline". Bardeen says his theory can explain superconductivity only up to 40 K. But at 90 K, he admits, "we are going to need a new mechanism", Schrieffer, co-author of the BCS, says "superconductivity may turn out to have as many causes as the common cold."

Fundamentalists among superconductivity researchers are studying why the ceramics lose their electrical resistance. They are frantically shooting high magnification (electron microscope) pictures of materials to find out defects, if any, in the structure of molecules. Others are using pulsed beams of neutrons, ultrasonic beams and X-rays.

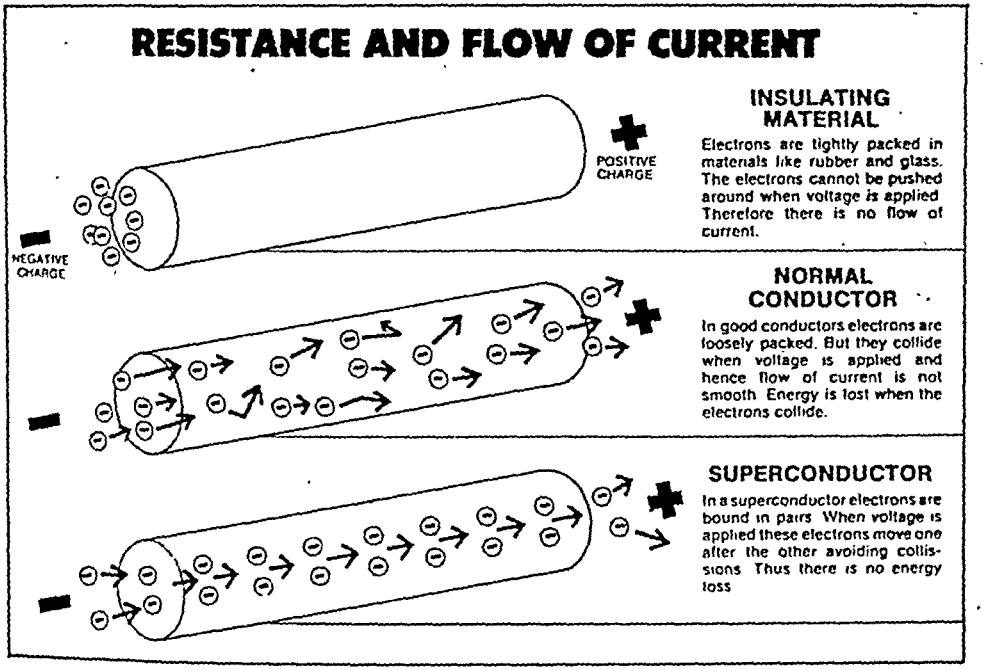
The west is intrigued by the report that the temperature record set by Chu and Wu is being matched and even surpassed by researchers in India and Japan. The latest report is as high as 240 K which is warmer than the Siberian winter. This means that somebody is on the brink of ultimate success. In the past year, the transition temperature has increased by a factor of four. If it increases by the same factor in the same period again, we will have room temperature superconductivity in less than one year from now.

But there is many a hurdle yet to be cleared. One is the technology of usable shapes of the superconducting materials, worse still, if these materials are ceramic. How brittle materials of ceramic is no secret for anyone who has dropped a rice bowl.

Flexibility is the password as the stuff will have to be wound around and stretched. Already scientists in America and Japan have reported some success in forming ribbons and



Prof. Subba Rao: Quietly efficient

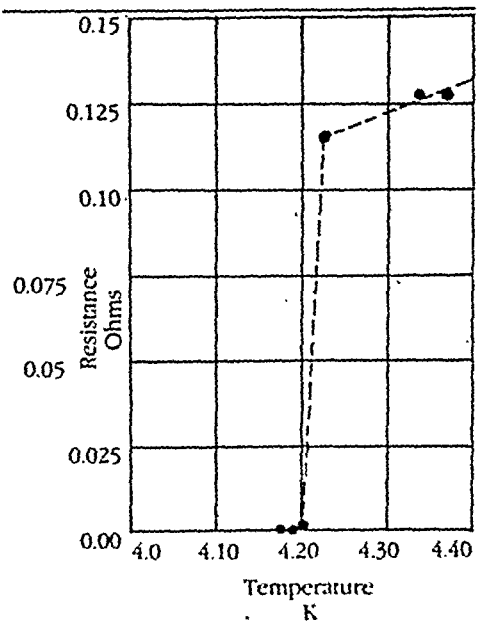


thin wires from ceramic and even creating the necessary shapes by spray-painting. Rings and flexible tapes made of high temperature superconductors have also been developed as samples.

Though the ceramic samples remain superconductors at high temperatures and can withstand intense magnetic fields, they have, as yet, only about a hundredth of the current capacity of conventional superconductors. The current flowing through the conductor determines the stength of the magnetic field around it. What is in demand are high power magnets. High current is found to be contradictory with high transition temperatures. Nature seems to say that one can't eat the cake and have it too!

Most high transition temperatures recently reported pertain only to momentary superconductivity. The materials remain superconductive only for a very limited 'temperature window' and that too for a very restricted amount of current. For practical purposes, the temperature window has to be tolerably wide and the current-carrying capacity infinite. Anything short of this will have no more than curiosity value.

Many renowned scientists today have be-

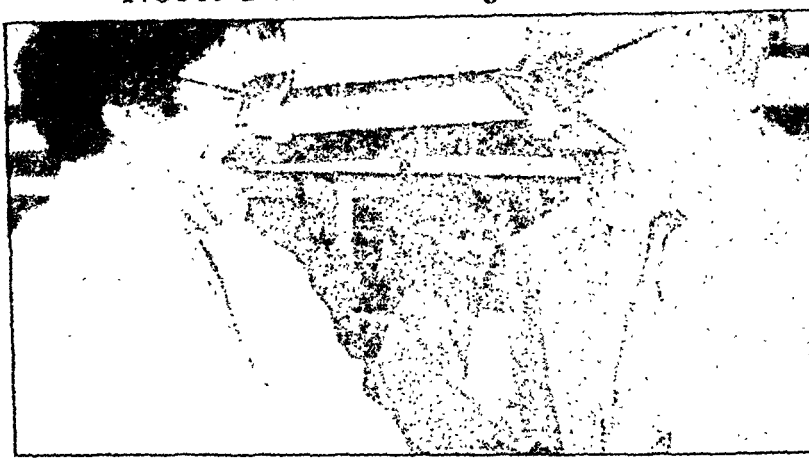


Resistance in ohms of a specimen of mercury versus absolute temperature. (Kamerlingh Onnes, H.)

come chefs of a new kind. Their labs look like huge kitchens. They are constantly grinding, mixing, heating, boiling, evaporating, cooling and cooking strange recipes with the hope that the right formula will surface by a miracle of chance.

Everybody is excited. In fact, too excited too secretive to help one another. They afraid that there will be misappropriatio credit due to them. It is almost a free-for-a is hoped that this feverish activity will proc the miracle. □

Nobel Prize Winning Research



Congratulating each other: Bednorz and Muller

The story of Karl Alex Muller, 60, and his colleague Johannes Georg Bednorz, 37, who jointly won the Nobel Prize for Physics in 1987, is the story of relentless pursuit in the field of superconductivity since 1983.

Dr Muller, a physicist at the IBM Zurich Research Laboratory in Switzerland and Dr. Bednorz decided to pursue an approach to superconductivity that had met with limited success in the past. Instead of using the kind of metallic alloys that held the existing record, they turned their attention to the metallic oxides (compounds of metals and oxygen) known as ceramics.

Some theoriss had suggested ceramics as potential superconductors despite the fact that they were poor conductors at room temperatures. In fact, ceramics are often used as insulators, for example, on high-voltage electric transmission lines.

Muller and Bednorz, tinkered with hun-dreds of different oxide compounds ove the next few years, varying quantities an ingredients like alchemists in search of th philosopher's stone.

Finally, in December 1985, they cam across a compound of barium, lanth anum, copper and oxygen that seeme promising. When Bednorz tested the com pound, he was startled to see signs o superconductivity at an unprecedente 35K, by far the highest temperature o which anyone had observed the phe nomenon.

Royal Swedish Academy of Sciences i their announcement about the Nobel Priz cited the important breakthrough achieve by Dr. Muller and Dr. Bednorz in th discovery of superconductivity in ceram materials. Their work could eventual help shape ultra-powerful and ultrafa computers among other possible applica tions, the Academy said.

Part Two
WORLD PANORAMA

Asia Booms With Yen Up: World Economy On The Swing

WORLD UPDATE

With the upsurge in the value of Yen, Asia's four newly industrialising countries — Hong Kong, Singapore, South Korea and Taiwan are nabbing the world market — share very quickly.

THE surge in the value of the Japanese yen is changing Asia, altering long-time alliances and bringing new prosperity from Taiwan to Thailand.

Two years ago, as American officials plotted to lower the value of the U.S. dollar and raise the value of the yen, their main goal was to reduce the enormous U.S. trade deficit. That has not happened so far, but within Asia the consequences have already been immense.

"The effects of the yen's appreciation are being felt in every economy in the region'" said Mr. T.C. Thompson, chief economist of Wardley Investment Services in Hong Kong.

"Manufacturing industries throughout Asia are selling both to Japan and to Japan's traditional export markets abroad."

Some industries, such as ship-building, aluminium production and manufacture of small electronic goods, are leaving Japan, perhaps for good.

The electronics giant Sony Corp., for example, said that it was considering moving 25 per cent of its production capacity out of Japan to address the financial problems posed by the rising yen. And in the first quarter of last year South Korea for the first time surpassed Japan in orders to build new ships.

A number of Asian nations are scrambling to snatch industries from Japan and attract its investment capital. The race is on to becoming the next Japan.

"Looking at the past 30 or 40 years, Japan took over the U.S. function in the world economy: manufacturing," said Mr Arthur A. Odake, chairman of the Mitsubishi Corpn's Hong Kong subsidiary. "Now it is Japan's turn to give up this role, with Korea and Taiwan taking over our function."

The yen has appreciated about 80 per cent against the dollar since its trough on February 22, 1985.

That means that a Japanese colour television set with an average export price of about 40,000 yen would have cost $ 152 at the yen's low point. Assuming manufacturers passed on the entire increase to consumers, at today's exchange rate of about 143 yen to the dollar, the same television would be about $280, or twice the average export price of a Korean colour TV, ($140).

The results of the yen's rise are manifold:

By far the biggest beneficiaries have been Asia's four newly industrialising countries — Hong Kong, Singapore, South Korea and Taiwan. Even before the yen's surge, their wage rates were lower and they were steadily increasing exports and technical skills. But it was the yen's rise that gave these countries the opportunity to nab the market-share so quickly.

The four nations are enjoying a boom in exports because many of their products are similar to Japan's but are relatively cheaper because of exchange rates. The result has been an extremely rapid economic growth averaging more than nine per cent last year, up from a bit more than two per cent growth in 1985, when the yen hit its low point.

A flood of Japanese capital is being spent on property and factories abroad, as Japanese companies look for cheaper places to locate manufacturing. Japan's direct investment overseas in the last quarter of 1986 exceeded the figure for all of 1985.

After long complaining — as bitterly as U.S. exporters — that Japan was effectively a closed market, most Asian countries are finding that they finally can sell in Japan, as their goods drop in price compared with Japanese products. Hong Kong's exports to Japan, for example, soared 74 per cent in the second quarter of last year over the previous year's levels.

As it seeks cheaper alternatives to Japanese suppliers, China is doing a booming business with Taiwan and South Korea, even though it has diplomatic relations with neither.

Although manufacturing has increased in many Asian countries, it is most pronounced in the four newly industrialised countries.

Last year they together produced more colour television-sets than Japan, and this year Korea is shipping more television sets to the United States than Japan. Likewise, Korean production of video casette recorders has surged from 1.4 million units in 1985 to around 6 million this year, most destined for the United States.

The figures are similar for other products such as microwave ovens and semi-conductors.

These waves of exports are the main reason for the phenomenal economic growth that the countries are enjoying.

In the first half of last year, for instance, South Korea's economy grew at an annual rate of 15 per cent compared with 3.5 per cent in the U.S. and about 3.5 per cent in Japan.

From January to June South Korea recorded a $4.1 billion surplus on its current account, the broadest measure of trade flows, compared with just $452 million during the same period the previous year.

Such surplus means that countries are overflowing with cash. Taiwan, for example, has official foreign exchange reserves of $62 billion, among the largest in the world. Those reserves make it difficult for Taiwan to argue that it cannot afford to open its markets.

Taiwan already is making it easier for its people to move capital abroad, partly to reduce its reserves. South Korea also is easing restrictions on its securities markets, which is likely to lead to a more sophisticated capital

Forced Out By the Boom

Tokyo's well-known stratospheric cost of living inflicted its most serious diplomatic casualty the other day when Uganda's embassy shut its doors.

Neighbours watched as a large truck shoved up in front of the plain, two-storey building in the capital's Shoto section and carted off Ugandan Government documents jammed into cardboard boxes. Embassy officials declined to say much as they left, but the Ambassador, Mr Ernest Obitre-Gama, said that economic reasons had forced him out.

Although he did not elaborate, the message was obvious: his country, where the annual per capita income of $240 is less than the cost of a meal in some restaurants here, could no longer cope with the powerful yen and with the land values that make Manhattan real estate prices look like a steal.

From now on Uganda's affairs in Japan will be handled by its embassy in Beijing. Although the Ugandan situation was extreme, it reflected the hard times many nation's missions face in a capital that habitually winds up at the top of rosters of expensive cities for foreign executives.

Some embassies have been forced to trim their staff or to otherwise make do with less—less entertainment, less costly cable traffic and even less electricity. A Peruvian diplomat said his embassy had found it necessary to restrict the use of air-conditioning in summer and of heating in winter.

Not surprisingly, the missions of developing nations are affected the most, but others have hardly escaped the strong yen's budget-pounding effects.

According to a weekly magazine, Shukan Asahi, the Venezuelan Ambassador was forced to move from a relatively large house to a more modest apartment building of a type that Japanese, in an uncharacteristic burst of linguistic extravagance, call mansions.

Another South American diplomat said his embassy now limited overseas telephone calls to hours when rates were cheapest.

Haiti, never a conspicuous presence here, has been reduced to a single diplomat. The embassy, actually a moderately priced apartment in a building shared by at least 13 other foreign missions, hires drivers and other employees on a part-time basis.

market and financial services industry.

"Korea's capital markets will be growing substantially," said Shin Chul Kyoo, senior executive vice president of Hyundai Engineering & Construction Co., part of the giant Hyundai group. As a result, he said, Hyundai plans to become more involved in financial services.

Yet Korea and Taiwan complain that just as they are beginning to benefit from the yen's rise, the United States is increasing the pressure on them to raise their own exchange rates.

American officials have forced Taiwan to accept a 2% per cent appreciation of the Taiwan dollar since early 1986, while the South Korean won has risen 7 per cent in 1987. But these increases are slight compared with that of the yen. So almost all countries still find it cheaper to import from Taiwan than from Japan.

American officials want the Taiwanese and Korean currencies to appreciate because they fear that otherwise, Japan's enormous trade surplus with the United States could simply be redistributed to other countries in the region.

Meanwhile, just as the high dollar of a few years ago drove U.S. companies to move production offshore, Japanese companies are building factories all around the world to take advantage of cheaper currencies and lower wage costs. In 1986 Japanese companies invested in foreign factories and real estate valued at $143 billion, more than double the $6 billion in 1985. A Japanese government study suggested recently that this will rise rapidly, hitting $42 billion by 1991.

Turanians of today and by others to the Dravidians of India.

Sumeria had a hectic history. The original Sumerians were overwhelmed by a number of foreign conquerors, through successive centuries – the Akkadians, Babylonians, Assyrians, Chaldeans etc. But all through these conquests and turmoil, the old Sumerian civilization remained intact, being supplemented and reinforced by the conquering races.

The racial origin of the *Egyptians* is also a matter of dispute. Some regard them as a conquering Asian race acquainted with metallurgy and armed with superior weapons, who easily triumphed over the tribes inhabiting the Nile Valley in neolithic times. The history of Egypt, unlike that of Sumeria, was more or less smooth. Except for the invasion of the Asian tribe Hyksos in 1790 B.C. and their occupation of Egypt till 1573 B.C. Egypt was ruled by a succession of indigenous dynasties, under whom the old Egyptian civilization grew to its full dimensions.

On the whole, the *Indus*, Sumerian and Egyptian civilizations remain the supreme human achievements of the 4th millennium B.C. Around 2000 B.C. the Phoenicians settled on the Syrian coast and laid the foundation of a maritime empire in the Mediterranean.

Hittites established a kingdom in Asia Minor which later expanded eastwards and southwards. At Mycenae (Greek mainland) and Crete and adjoining islands, other tribes about whom also we know very little, built cities that rivalled those of Sumeria and Egypt in splendour.

OUTLINE OF HISTORY

The great Civilizations of Sumeria, Egypt and the *Indus Valley* open the long and chequered history of mankind. An outline of that history through the ages, from the early civilizations to the Second World War, is given below in chronological order.

C. 6000: Neolithic settlements at Mehrgarh, Baluchistan and in the *Indus Valley*; Sundried brick houses. Domestication of cattle, water buffalo, sheep and goats. Cultivation of wheat and barley. Copper known.

5000: Development of farming in the Indus Valley – wheat and barley, fruit trees, jujubu and date, cultivation of cotton —; pottery and beads; Neolithic settlements in *Sumeria*, *domestication of animals*, *Beginnings of farming*. Neolithic settlements in *Egypt*.

4000: Invention of potter's wheel and bow drill in *Indus Valley*; kilnfired pottery; red painted wares, beads of local stones and *turquoise* – copper melting. Susa founded in *Sumeria*. White painted pottery in *Egypt* and *development of farming*.

3500: Growth of pottery in *Indus Valley*; several varieties of decorated wares; Sumeria develops cuneiform (wedge-shaped) writing; Sumerian temples at Eridu, Ur and Uruk; Potter's wheel in use in Sumeria.

3000: Copper alloys in *Indus Valley*; bronze in use, cultivation of wine grape; First dynasty at Ur in Sumeria. Wheeled vehicles in use, linen produced. King Menes the Fighter unites Upper and Lower Egypt; *Phoenicians* settle on the Syrian coast with centres at Tyre and Sidon; Early Minoan civilization in Crete.

2980: Memphis made the capital of Egypt. Pharoah god-king.

2870: Beginnings of Trojan culture in Asia Minor.

2850: Traditional beginnings of civilized life in China.

2650: The first pyramid (stepped pyramid) built in Egypt.

2500: Sixth dynasty in Egypt; Collapse of the Old Kingdom; Dominance of the Ur dynasty over all Sumeria, Sumerian numerical system based on 6 and 12; Lunar calendar; 360 degrees in a circle, 60 minutes in an hour, 60-seconds in a minute, etc.; Egypt introduces calendar of 365 days without adjustments. Egyptians discover use of papyrus; Equinoxes and solstices determined in China; Beginnings of astronomical observations in Sumeria, India, Egypt and China. Harappan civilization in Indus Valley (see Part III India).

2200: Traditional beginnings of the Hsia dynasty in China.

2100: Abraham leaves Ur in Chaldea.

2000: Middle Minoan period in Crete. Mycenae in Greece becomes a centre of civilization. Aryan settlements in India; Vedic civilization takes shape; The composition of the Rig Veda.

1995: Amenemhi founds the 12th dynasty in Egypt.

1800: Hammurabi, the Babylonian Emperor, proclaims a code of laws.
1790: Hyksos, an Asian tribe, dispossesses the 13th dynasty and occupies Egypt.
1580: Cretan civilization at its height.
1500: Flowering of Mycenaean civilization in Greece.
1480: Moses leads Israelites out of Egypt.
1400: Myceanaens destroy Knossus palace at Crete. Decay of Cretan civilization.
1380: Amenhotep (Amenophis IV) revolutionises Egyptian religion and proclaims a new religion.
1362: Rebellion in Egypt: Egypt loses her outer possessions.
1345: 19th dynasty in Egypt: Egypt recovers her former power.
1200: Philistines (Phoenicians) from north Mediterranean occupy Palestine. Etruscans, an Asian people, settle in Italy. Homeric siege of Troy by Greeks (?).
1027: Chou dynasty begins in China.
1013: Rise of the Israelites in Palestine. David (1013–973) establishes Israelite hegemony.
1000: Egypt ceases to be a power. Epic civilization in India – composition of the great epics, Ramayana and Mahabharata. Phoenicians develop alphabetical writing.
850: Phoenicians found the city of Carthage on the northern coast of Africa.
753: Traditional foundation of the city of Rome.
621: Draco publishes Athenian laws†
610: Ionian (Sanskrit *Yavana,* Persian and Arabic *Yunani*) city states on the west coast of Asia Minor.
604: A new empire in Mesopotamia with Babylon as capital.
594: Solon reforms Athenian constitution.
586: Babylonians capture Jerusalem.
560: Croesus, reputed to be the richest king of his times, rules Lydia. Lydians issue the earliest known systematic currency.
538: Cyrus founds the Persian Empire and captures Babylon.
509: Foundation of the Roman Republic.
490: Battle of Marathon; Athenians defeat Persians.
483: Death of Buddha in India.
480: Battle of Thermopylae – Spartans under Leonidas wiped out by Persians; Battle of Salamis (naval battle) – Athenians under Themistocles rout the Persians.
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347: Death of Plato
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336: Alexander becomes the King of Macedon.
334: Battle of Granicus; Alexander's first victory over the Persians
333: Battle of Issus, Alexander's second victory over Darius of Persia.
332: Alexander captures Tyre and occupies Egypt.
331: Battle of Arbela (Gaugamela); Alexander finally defeats Persians.
330: DDeath of Darius and the end of Persian Empire.
326: Battle of Hydaspes; Alexander defeats Porus of India and conquers the Punjab.
323: Death of Alexander at Babylon; Ptolemy I founds dynasty in Egypt; Alexandria (in Egypt) becomes the intellectual centre of the world
321: Chandragupta Maurya establishes the Mauryan Dynasty in India; Death of Aristotle
312: Seleucus I founds dynasty in Asia
275: Battle of Beneventum; Rome finally defeats Pyrrhus and becomes undisputed master of all Italy.
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214: The construct China

† A stiff code of conduct with severe punishments for minor breaches – hence the term *draconian.*

Turanians of today and by others to the Dravidians of India.

Sumeria had a hectic history. The original Sumerians were overwhelmed by a number of foreign conquerors, through successive centuries – the Akkadians, Babylonians, Assyrians, Chaldeans etc. But all through these conquests and turmoil, the old Sumerian civilization remained intact, being supplemented and reinforced by the conquering races.

The racial origin of the *Egyptians* is also a matter of dispute. Some regard them as a conquering Asian race acquainted with metallurgy and armed with superior weapons, who easily triumphed over the tribes inhabiting the Nile Valley in neolithic times. The history of Egypt, unlike that of Sumeria, was more or less smooth. Except for the invasion of the Asian tribe Hyksos in 1790 B.C. and their occupation of Egypt till 1573 B.C. Egypt was ruled by a succession of indigenous dynasties, under whom the old Egyptian civilization grew to its full dimensions.

On the whole, the Indus, Sumerian and Egyptian civilizations remain the supreme human achievements of the 4th millennium B.C. Around 2000 B.C. the Phoenicians settled on the Syrian coast and laid the foundation of a maritime empire in the Mediterranean.

Hittites established a kingdom in Asia Minor which later expanded eastwards and southwards. At Mycenae (Greek mainland) and Crete and adjoining islands, other tribes about whom also we know very little, built cities that rivalled those of Sumeria and Egypt in splendour.

OUTLINE OF HISTORY

The great Civilizations of Sumeria, Egypt and the Indus Valley open the long and chequered history of mankind. An outline of that history through the ages, from the early civilizations to the Second World War, is given below in chronological order.

B.C. 6000: Neolithic settlements at Mehrgarh, Baluchistan and in the *Indus Valley*; Sundried brick houses; Domestication of cattle, water buffalo, sheep and goats; Cultivation of wheat and barley; Copper known.

5000: Development of farming in the Indus Valley – wheat and barley, fruit trees; jujubu and date; cultivation of cotton —; pottery and beads; Neolithic settlements in *Sumeria;* domestication of animals; Beginnings of farming; Neolithic settlements in *Egypt.*

4000: Invention of potter's wheel and bow drill in *Indus Valley*; kilnfired pottery; red painted wares; beads of local stones and turquoise – copper melting. Susa founded in *Sumeria;* White painted pottery in *Egypt* and development of farming.

3500: Growth of pottery in *Indus Valley*; several varieties of decorated wares; Sumeria develops cuneiform (wedge-shaped) writing; Sumerian temples at Erudu, Ur and Urak; Potter's wheel in use in Sumeria.

3000: Copper alloys in *Indus Valley*; bronze in use; cultivation of wine grape; First dynasty at *Ur in Sumeria*; Wheeled vehicles in use; linen produced; King Menes the Fighter unites Upper and Lower Egypt; *Phoenicians* settle on the Syrian coast with centres at Tyre and Sidon; Early Minoan civilization in Crete.

2980: Memphis made the capital of Egypt Pharoah god-king.

2870: Beginnings of Trojan culture in Asia Minor.

2850: Traditional beginnings of civilized life in China.

2650: The first pyramid (stepped pyramid) built in Egypt.

2500: Sixth dynasty in Egypt; Collapse of the Old Kingdom; Dominance of the Ur dynasty over all *Sumeria; Sumerian numerical system* based on 6 and 12; Lunar calendar; 360 degrees in a circle, 60 minutes in an hour 60-seconds in a minute, etc.; Egypt introduces calendar of 365 days without adjustments Egyptians discover use of papyrus; Equinoxes and solstices determined in China; Beginnings of astronomical observations in Sumeria, India, Egypt and China. Harappan civilization in Indus Valley (see Part III India).

2200: Traditional beginnings of the Hsia dynasty *in China.*

2100: Abraham leaves Ur in Chaldea.

2000: Middle Minoan period in Crete. Mycenae in Greece becomes a centre of civilization Aryan settlements in India; Vedic civilization takes shape; The composition of the Rig Veda

1995: Amenemht founds the 12th dynasty in Egypt.

1800: Hammurabi, the Babylonian Emperor, proclaims a code of laws.
1790: Hyksos, an Asian tribe, dispossesses the 13th dynasty and occupies Egypt.
1580: Cretan civilization at its height.
1500: Flowering of Mycenaean civilization in Greece.
1480: Moses leads Israelites out of Egypt.
1400: Myceanaens destroy Knossus palace at Crete. Decay of Cretan civilization.
1380: Amenhotep (Amenophis IV) revolutionises Egyptian religion and proclaims a new religion.
1362: Rebellion in Egypt: Egypt loses her outer possessions.
1345: 19th dynasty in Egypt: Egypt recovers her former power.
1200: Philistines (Phoenicians) from north Mediterranean occupy Palestine. Etruscans, an Asian people, settle in Italy. Homeric siege of Troy by Greeks (?).
1027: Chou dynasty begins in China.
1013: Rise of the Israelites in Palestine. David (1013–973) establishes Israelite hegemony.
1000: Egypt ceases to be a power. Epic civilization in India – composition of the great epics, Ramayana and Mahabharata. Phoenicians develop alphabetical writing.
850: Phoenicians found the city of Carthage on the northern coast of Africa.
753: Traditional foundation of the city of Rome.
621: Draco publishes Athenian laws†
610: Ionian (Sanskrit *Yavana*, Persian and Arabic *Yunani*) city states on the west coast of Asia Minor.
604: A new empire in Mesopotamia with Babylon as capital.
594: Solon reforms Athenian constitution.
586: Babylonians capture Jerusalem.
560: Croesus, reputed to be the richest king of his times, rules Lydia. Lydians issue the earliest known systematic currency.
538: Cyrus founds the Persian Empire and captures Babylon.
509: Foundation of the Roman Republic.
490: Battle of Marathon; Athenians defeat Persians.
483: Death of Buddha in India.
480: Battle of Thermopylae – Spartans under Leonidas wiped out by Persians; Battle of Salamis (naval battle) – Athenians under Themistocles rout the Persians.
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241: End of the First Punic War; Sicily becomes the first province of Rome.
221: Shih Huang Tih completes conquest of all Chinese states.
218: Beginning of the Second Punic War: Hannibal, the Carthagian general attacks Rome.
214: The construction of the Great Wall of China.

† A strict code of conduct with severe punishments for minor breaches – hence the term *draconian*.

213: Burning of Chinese classics.
212: Romans capture Syracuse; Archimedes killed.
202: Eastern Han dynasty in China; Hannibal defeated by the Roman general, Scipio Africanus.
201: End of Second Punic War; Rome dominates western Mediterranean.
196: Rome conquers Macedon and Greek city states.
149: Outbreak of Third Punic War.
146: Romans invade Carthage and make it a Roman province.
124: Establishment of a college in China to train civil servants.
110: China under Emperor Wu Ti expands towards south east.
106: Marius and Sulla become Roman leaders.
60: The formation of the First Triumvirate; Pompey, (Julius) Caesar, Crassus.
58: Caesar begins conquest of Gaul.
55: Caesar's conquest of Britain.
53: Crassus, defeated by Persians, falls into disgrace in Rome.
49: Caesar crosses the Rubicon and challenges Pompey.
48: Battle of Pharsalus; Caesar defeats Pompey.
46: Caesar reforms the calendar; later known as the Julian Calendar.
4: Murder of Caesar.
3: The formation of the Second Triumvirate; ...ony, Octavian (Augustus), Lepidus.
42: Battle of Philippi; Antony and Octavian defeat Brutus and his associates.
31: Battle of Actium, Octavian defeats Antony and Cleopatra and becomes the Emperor of Rome.
27: Roman Senate confers the title of *Augustus* on Octavian; Octavian becomes *Caesar Augustus*
4: Birth of Jesus Christ?*.
A.D. 6: China institutes Civil Service Examination.

* During 4 B.C. as the year of Christ's birth has always been a matter of dispute among chronologers and hence it is given with a question mark. Christian Era commenced on January 1, 754 AUC (ab urbe condita – "from the foundation of the city of Rome)".

Dionysius Exiguus, the Scythian monk who invented AD reckoned the birth of Christ to have occurred in 753 AUC, but Christ was born under Herod the Great according to the Gospels, ie., at the latest in 750 AUC.

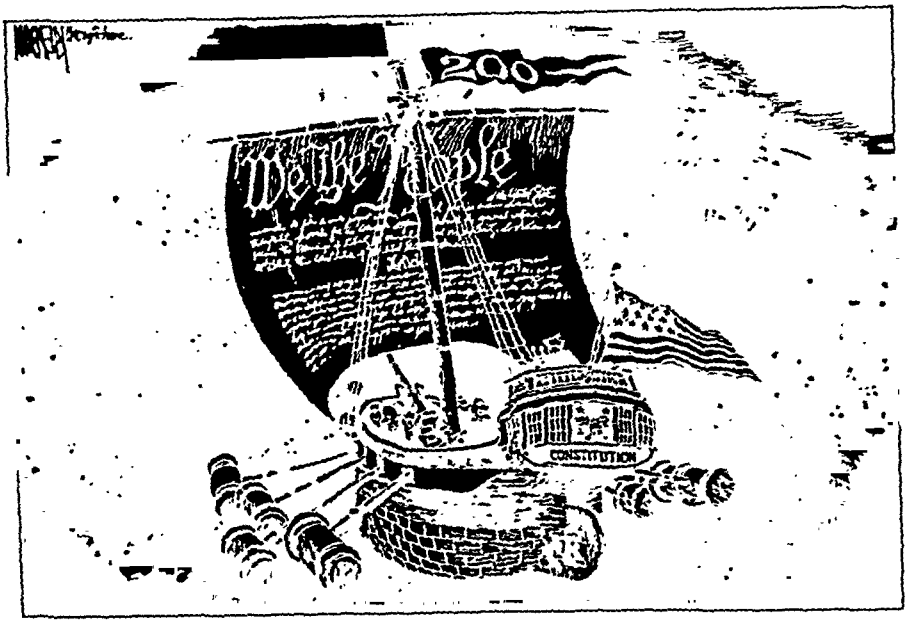
This dating though disputed has continued in use to the present day, and, as a result, the Nativity is reckoned to have taken place in or shortly before the year 4 BC when Herod died.

14: Augustus dies.
29: Crucifixion of Christ.
64: Great Fire of Rome.
70: Emperor Titus suppresses Jewish revo... and destroys Jerusalem.
79: Vesuvius volcano erupts and destroys th... famous Roman towns of Pompeii and Herc... laneum.
80: Completion of the Roman Colosseum.
97: Chinese penetrate into Persian Gulf.
117: Roman Empire reaches its greatest exte... under Hadrian.
180: Death of Marcus Aurelius. Beginning ... the decline of the Roman Empire.
212: Emperor Caracalla gives Roma... citizenship to all the free citizens of th... empire.
220: Period of Civil War in China begins.
230: Emperor Sujin in Japan organises ... Japanese empire.
251: Goths defeat and kill the Roman emperc... Decius.
284: Diocletian becomes emperor of Rom... persecution of Christians reaches its clima...
306: Constantine becomes emperor.
313: Edict of Milan gives tolerance to Chris... ians in the Roman empire.
320: The Gupta dynasty rises in India.
325: The Council of Nicaea, first Gener... Council of the Christian Church.
378: Battle of Adrianople; Goths defeat an... kill Eastern Roman Emperor Valens.
395: Final division of the Roman Empire int... Eastern and Western empires.
410: Alaric the Goth captures and destroy... Rome. This is taken to be the end of th... Roman Empire.
415: Visigoths begin conquest of Spain.
429: Vandals begin conquest of North Afric...
452: Attila invades Italy.
455: Rome pillaged by Vandals.
476: Romulus Augustulus, the last Wester... Roman emperor, deposed by Odovacar; Th... end of Western Roman Empire.
481: Clovis becomes the King of Franks an... occupies Gaul.
527: Accession of the Eastern Roman Emperc... Justinian I.
529: Publication of the Civil Code by Justinian
538: Justinian builds the famous Christia... church Hagia Sophia at Constantinople.
570: Birth of Mohammed
589: Unification of China under the Ch'e... dynasty.

618: Tang dynasty comes into power in China.
622: Hejira or flight of Mohammed from Mecca to Medina; Beginning of the Mohammedan era.
632: Death of Mohammed; Accession of Abu Baker, the first Caliph
636: Muslims occupy Damascus.
638: Capture Jerusalem.
641: Persia conquered by Muslims.
643: Occupy Alexandria.
698: Invade Carthage
718: The greatest Muslim attack on Constantinople fails.
732: Advance in Spain halted by Charles Martel.
750: Beginning of Abbasid Caliphate (replacing Ommayyads).
786: Accession of Haroun-al-Rashid in Baghdad.
800: Coronation of Charlemagne as Holy Roman Emperor.
814: Death of Charlemagne and the division of his empire.
827: Muslims invade Sicily
840: Muslims capture Bari and occupy Southern Italy.
843: Treaty of Verdun; Final division of the Carolingian Empire founded by Pipin, King of France, in A.D. 751; Beginning of France and Germany as separate states.
862: Rurik founds Viking state in Russia, first at Novgorod, later at Kiev.
866: Fujiwara period begins in Japan
868: The first printed book in China
899: Death of Alfred the Great in England.
900: Ghana in North West Africa at the height of its power.
960: Beginning of Sung dynasty in China.
982: Norsemen discover Greenland.
987: Hugh Capet, King of France, founds Capetian dynasty.
1000: Leif Ericsson discovers North America.
1016: Canute becomes King of England
1066: William I, Duke of Normandy, conquers England.
1069: Reforms of Wang-An-Shih in China
1071: Battle of Manzikert; Seljuks destroy Byzantine army.
1073: Gregory VII becomes Pope
1075: Seljuk Turks capture Jerusalem
1086: Compilation of Domesday Book in England
1095: Council of Clermont, Pope Urban II preaches First Crusade
1099: First Crusade under Godfrey of Bouillon takes Jerusalem.
1148: Second Crusade fails to capture Damascus.
1152: Accession of Emperor Frederick Barbarossa.
1154: Henry of Anjou establishes the Plantagenet dynasty in England.
1161: Explosives used in warfare in China.
1176: Battle of Legnano; Frederick Barbarossa defeated by the Lombard League; Italian states become autonomous.
1185: Kamakura period in Japan; Epoch of feudalism in Japan which lasts until 1333.
1189: Third Crusade under Frederick Barbarossa, Philip Augustus of France and Richard the Lion Heart of England.
1192: End of the Third Crusade without regaining Jerusalem.
1204: Fourth Crusade captures Constantinople.
1206: Jengiz Khan becomes King of the Mongols and overruns Central Asia
1212: Battle of Las Navas de Tolosa; Spaniards win decisive victory over the Muslim Moors.
1215: Fourth Lateran Council; Papal authority reaches its zenith; Magna Carta in England
1237: Mongols invade Russia.
1260: Kublai Khan rules in China.
1291: The League of Uri; Beginning of the Swiss Confederation; Crusades end.
1309: Papacy moves to Avignon, Beginning of the *Babylonian Captivity*
1314: Battle of Bannockburn, Robert Bruce of Scotland defeats the English army
1336: Ashikaga period in Japan.
1338: Beginning of the Hundred Years' War between England and France
1346: Battle of Crecy; English victory over the French and the Scots
1348: Black Death reaches Europe
1356: Battle of Poitiers, Black Prince of England defeats the French
1360: Peace of Bretigny, Edward III of England gains territories in France
1362: English made the official language in England
1363: Timur (Tamerlane) begins his career of conquest in Asia
1368: Ming dynasty in China
1377: Pope returns to Rome, End of Italian Captivity
1381: Peasants Revolt
1398: Timur invades

1415: Battle of Agincourt; Henry V of England gains a decisive victory over France.
1429: Joan of Arc leads the French army and takes Orleans.
1431: Joan of Arc burnt at stake as a witch.
1453: Turks capture Constantinople and end the Byzantine or the Eastern Roman empire; End of the Hundred Years' War.
1455: First battle of St. Albans; Beginning of the Wars of the Roses in England.
1469: Marriage of Ferdinand of Aragon with Isabella of Castile and the formation of the modern kingdom of Spain.
1485: Battle of Bosworth Field Beginning of Tudor period in Engalnd.
1488: Bartholomew Diaz rounds Cape of Good Hope.
1492: Christopher Columbus discovers the West Indies.
1497: John Cabot discovers Newfoundland.
1498: Vaso da Gama reaches Calicut by sea.
1499: Amerigo Vespucci charts part of the South American coast.
1500: Bedro Cabral discovers Brazil.
1517: Martin Luther begins the Reformation; Turks conquer Egypt.
1520: Suleiman the Magnificent becomes Sultan of Turkey; Turkish power at its height.
1521: Cortes conquers Mexico. Turks capture Belgrade.
1526: Battle of Panipat; Babar founds Mughul Empire in India
1532: Francisco Pizarro conquers Peru.
1533: Ivan IV (the Terrible) becomes Czar of Russia.
1534: Act of Supremacy; Hency VIII assumes control over English Church.
1542: First Portuguese sailors reach Japan.
1545: Opening of the Council of Trent.
1556: Akbar becomes Mughul Emperor.
1557: Macao becomes a permanent Portuguese port in China.
1558: Elizabeth I becomes Queen of England.
1577: Drake begins voyage round the world returning by 1580.
1582: Pope Gregory XIII introduces (New style) Gregorian Calendar.
1585: Hideyoshi, dictator of Japan, unifies the country.
1588: English defeat the Spanish Armada.
1598: Edict of Nantes; French Protestants given liberty of worship; End of French Wars of Religion.
1600: English East India Company formed.
1602: Dutch East India Company founded
1603: Union of English and Scottish Crowns James VI of Scotland becomes James I o Britain.
1611: Publication of the Authorised Version o the English Bible.
1613: Michael Romanov becomes Czar o Russia and establishes the Romanov dynasty
1620: Pilgrim Fathers settle in New Englanc
1624: Richelieu becomes Chancellor i France.
1628: Petition of Rights in England.
1636: Japanese forbidden to go abroad.
1641: Jaapanese exclude all foreigners fror Japan, except small Dutch trading ships.
1642: Outbreak of the English Civil Wa between Royalists and Cavaliers.
1644: Ching dynasty (Manchu) in China.
1649: Charles I of England executed; Cron well becomes Protector of England.
1652: The Dutch establish Cape Colony.
1660: Restoration of monarchy in Britai Charles II founds the Royal Society.
1661: Mazarin, who succeeded Richelieu a the Chancellor of France, dies; Louis XIV take over the government in person.
1655: Great Plague of London.
1666: Great Fire of London.
1688: Glorious Revolution in England; Jame II abdicates the British throne.
1689: Bill of Rights in England.
1694: Founding of the Bank of England.
1696: Peter the Great becomes Czar of Russi
1701: War of Spanish Succession begins.
1704: Marlborough wins the Battle o Blenheim.
1721: Robert Walpole becomes the first Prim Minister of England.
1739: Nadir Shah of Persia sacks Delhi; War o Jenkins' Ear begins between Spain and Britai
1740: Frederick the Great becomes King o Prussia; Maria Theresa succeeds to the A strian throne; Beginning of the War of Austria Succession.
1751: Clive takes and holds Arcot in India an checks French advance; Chinese conquest o Tibet.
1756: Seven Years' War begins.
1757: Clive conquers Bengal.
1760: Battle of Wandiwash; The English defe the French in India.
1762: Catherine II becomes Czarina in Russi
1770: James Cook discovers New South Wale
1776: American Declaration of Independenc

200 Years of US Constitution



Philadelphia: The delegates finished their work 200 years ago on September 17. In just a few thousand words they framed a structure of government strong enough, and flexible enough, to survive the social and economic and scientific revolutions of these last two centuries.

The birthday of the American Constitution is an occasion for national pride without cynicism, without apology. For any human institution to last as long as 200 years is remarkable. That America's fundamental law survives, and keeps Americans in freedom and prosperity, may be called a secular miracle.

But there is a strange thing. At this time of national celebration a good many Americans sound gloomy about their country's prospects. In London, The Economist had on its cover a frowning Statue of Liberty. The headline asks, "Whatever Happened to America's Smile?"

The American paranoia about communism has never seemed more irrational. The fact is that the West has won the war of ideas. The Third World is turning toward market economics, and so to a degree are the Soviet Union and China. The ideals of human liberty are proving hard to resist, too.

Americans should take pride in the appeal of the ideas written into their Constitution in 1787: limited state power, guaranteed individual freedoms. Instead, some who call themselves conservatives seem worried about them.

Voices of the American right are on the attack against the whole system of checks and balances. They want the president to have absolute power in foreign policy, for example. If Congress says no to aiding the Nicaraguan contras, the president should ignore it and spend the money.

(Excerpts from an article by Anthony Lewis in The New York Times)

1787: The drafting of the American Constitution.
1789: French Revolution begins; Storming of the Bastille (July 14); George Washington becomes the first President of USA.
1792: France becomes a Republic.
1793: Louis XVI beheaded.
1795: Napoleon Bonaparte disperses Paris mob (Oct. 5).
1804: Bonaparte becomes Emperor.
1805: Battle of Trafalgar and Nelson's death; Battle of Austerlitz (Dec. 2).
1807: Napoleon controls all Europe; Slave trade abolished in the British Empire.
1808: Peninsular War begins.
1812: Napoleon's retreat from Moscow.
1815: Battle of Waterloo, Napoleon sent to St. Helena.
1823: President of USA announces "Monroe Doctrine."
1832: First Reform Bill in England.
1833: First British Factory Act.
1837: Queen Victoria succeeds to the British throne.
1840: Introduction of the penny postage in England.
1846: Repeal of the Corn Laws and the resignation of Peel.
1848: Louis Philippe of France abdicates; Second French Republic proclaimed; *Marx and Engels* publish *the Communist Manifesto;* Gold discovered in California
1849: Britain annexes the Punjab.
1851: Submarine telegraph cable between Dover and Calais; Discovery of gold in Australia.
1852: Napoleon III becomes Emperor of France.
1853: Commander Perry lands in Japan.
1854: Crimean War.
1856: Livingstone completes journey across Africa.
1857: First war of Indian Independence.
1858: British Crown assumes Government of India.
1861: Abraham Lincoln becomes President of the United States; American Civil War
1862: Bismarck becomes the Chancellor in Prussia
1865: Abolition of Slavery in USA; Assassination of Lincoln.
1867: Dominion of Canada established, Russia sells Alaska to America
1868: Shogunate abolished in Japan; Meiji period of rapid westernisation under imperi leadership begins.
1869: Opening of the Suez Canal.
1870: Promulgation of the Doctrine of Pap Infallibility.
1871: Franco-Prussian War, Defeat of Franc by Prussia; Trade Unions in Britain legalised
1874: Disraeli succeeds Gladstone as Prim Minister.
1875: England purchases Suez Canal shares
1886: Britain annexes Upper Burma; Comple tion of Canadian Pacific Railway; Discovery o gold in Transvaal.
1894: Japan decalres war on China.
1895: Japan occupies Formosa and Korea.
1899: Boer War begins.
1900: Australian Commonwealth proclaimed.
1902: End of the Boer War.
1904: Russo-Japanese War begins.
1905: Russo-Japanese War ends by the Treaty of Portsmouth; Norway separates from Sweden.
1906: First Parliament in Russia.
1907: New Zealand becomes a Dominion.
1909: Union of South Africa formed.
1911: Chinese Revolution; Amundsen reaches South Pole (Dec. 14).
1912: China becomes a Republic under Sun yat Sen; The Titanic disaster.
1914: Archduke Francis Ferdinand of Austria assassinated at Sarajevo (June 28); Serbia suspected of complicity; Austria declares war on Serbia (July 28); The beginning of the first world war; Germany declares war on Russia (Aug. 1), on France (Aug. 3), and invades Belgium (Aug. 3); England declares war on Germany (Aug. 4); Austria declares war on Russia (Aug. 6); Japan declares war on Germany (Aug. 23). Battle of the Marne between France and Germany (Sept. 6-10); German advance halted. Russia declares war on Turkey (Nov. 2); England and France follow suit (Nov. 5).
1915: Germans start air attacks and submarine blockade against Britain; Germans sink American ship Lusitania (May 7).
1916: Battle of Verdun (Feb. 21–July 1) France stops German advance; Battle of Tannenburg; Russian armies humbled by Germany (Aug. 25); Battle of Jutland, Britain breaks German naval strength (May 31), Battle of Somme. France keeps her lines against Germany (July 1–Nov. 18), Lloyd George, Prime-minister, forms war cabinet in

Britain, Germans advance on the Eastern front; Vilna falls (Sept. 18). Rasputin, the Russian monk, assassinated by Prince Felix Yussupov (Dec. 30).

1917: Russian troops mutiny in Petrograd (March 10); Provisional government formed in Russia – Czar Nicholas II abdicates (March 15), USA declares war on Germany (April 16), Bolshevik Revolution begins in Russia (Nov. 6), Armistice concluded between the Revolutionary Government in Russia and Germany (Dec. 5).

1918: Treaty of Brest-Litvosk between Germany and Bolshevik Russia (March 3). The British captures Jerusalem (Dec. 8), Czar, Czarina and children executed at Ekaterinburg. Revolution breaks out in Germany; Emperor William II abdicates; German Republic proclaimed (Nov. 9). 1919: Peace conference opens in Paris (Jan. 18); Benito Mussolini founds Italian Fascist Party; Jalianwalla massacre in India (April 13); Treaty of Versailles signed (June 28).

1920: First meeting of the League of Nations.

1921: Formation of the Irish Free State.

1922: Mussolini marches on Rome and the Fascist Party takes over the Government of Italy.

1923: Turkish Republic proclaimed under Kemal Pasha.

1924: The first Labour Ministry in Britain under MacDonald; Greece becomes a Republic; Lenin dies (Jan. 21).

1927: Col. Lindbergh flies across the Atlantic.

1928: Capt. Kingsford Smith flies across the Pacific.

1929: Wall Street Crash; The beginning of the Great Depression.

1933: Hitler appointed Chancellor by Hindenburg; German Reichstag set on fire (Feb. 27).

1934: Austrian Chancellor Dollfuss murdered (July 25); Hindenburg dies and Hitler becomes dictator.

1935: Italy starts war against Ethiopia.

1936: Italians occupy Addis Ababa; Civil War breaks out in Spain; King Edward VIII of England abdicates; Duke of York succeeds King Edward as King George VI.

1938: Munich Agreement between Chamberlain (England), Daladier (France), Hitler (Germany) and Mussolini (Italy).

1939: General Franco establishes dictatorship in Spain (Feb.); Germans invade Poland; Germans and Russians partition Poland; Second World War begins (Sept.).

1940: Germany invades Denmark, Norway, Holland, Belgium and Luxembourg, British evacuation from Dunkirk; Germans occupy Paris; Russians occupy Lithuania, Latvia and Estonia; France surrenders to Germany (June).

1941: Germany attacks Russia (June); Japanese attack on Pearl Harbour (Nov. 7); Japanese occupy Malaya, Philippines and Sarawak.

1942: Japanese navy defeated by US fleets off Midway Island (June); Battle of El Alamein (October 23); The Allies rout German forces; The Germans retreat.

1943: Axis Powers – Germany, Italy and Japan – in retreat over all the war zones; Mussolini resigns; Italian Fascist Party is dissolved; Churchill, Roosevelt and Stalin, leaders of the victorious Allies, meet at Teheran.

1944: Allies enter Rome; Allies liberate France, Belgium, Holland and Bulgaria.

1945: Americans invade Okinawa, Japanese Cabinet resigns: President Roosevelt dies (April 12); Mussolini and his mistress shot dead by Italian partisans (April 28); Hitler commits suicide (April 30); German forces surrender to Allied armies (May 8)

POST WORLD WAR TWO

The signing of the United Nations Charter in 1945 was a landmark in man's quest for peace. After 40 years of its existence, the world community is now taking stock of its achievements and failures. (For U.N. see chapter on International Organisations.)

1945: The UN Charter was signed at San Francisco on June 26; Labour Party wins British elections (July 26), Atomic bomb dropped on Hiroshima (Aug. 6), Second atom bomb dropped on Nagasaki (Aug. 9), Japan surrenders to USA; The end of the Second World War; Trial of major war criminals opens at Nuremberg (Nov. 20)

1946: The first regular session of the UN Assembly held in London (Jan.). Trygve Lie elected the first Secretary General. Formal winding up of the League of Nations. Meeting of the UN General Assembly in New York (Oct. 23). Nuremberg sentences on Nazis carried

out; Goering commits suicide.
1947: Indonesia becomes free; India and Pakistan assume Dominion status (Aug. 15); The partition of Palestine approved by the UN; King Michael of Romania abdicates; Romania becomes a Republic.
1948: Burma becomes a Republic; Gandhiji assassinated (Jan. 30); Ceylon becomes independent; C. Rajagopalachari succeeds Mountbatten as the Governor General of India; Jews proclaim the new State of Israel in Palestine.
1949: General Mao-Tse-Tung proclaims the People's Republic of China; Chinese National-Government sets up headquarters in For-osa; United State of Indonesia comes into ing.
)50: The proclamation of the Republic of dia (Jan. 26); The Korean War begins; eorge Bernard Shaw dies aged 94 (Nov 2)
)51: Libya becomes independent
)52: King George VI of Great Britain dies d is succeeded by his daughter Elizabeth II. lympic Games open at Helsinki (July 1)
)53: Stalin dies aged 74 (March 6). Dag ammarskjold elected Secretary General of e UN; Hillary and Tensing conquer Everest larch 29), Korean armistice signed
)54: Formation of the Federation of odesia and Nyasaland. French settlements in dia pass under Indian control
955: Afro-Asian Conference at Bandung; lbert Einstein dies (April 18)
956: Sudan becomes an independent Repub-c, Pakistan proclaims itself an Islamic Repub-c; France leaves Indo-China; Col. Nasser ecomes President of Egypt, Nationalisation of uez Canal by President Nasser, Revolt in ungary against communist regime, Russia nds troops to Hungary to quell the revolt
957: Saar added to the German Federal epublic; Polish Communist Party under omulka comes to power in Poland, Ghana ecomes independent; Tunisia becomes a epublic; First Earth satellite (Sputnik I) unched by Russia.
958: The first American Earth satellite Ex-lorer I launched; Iraq becomes a Republic, rench Guinea becomes an independent Re-ublic.
959: Batista Government in Cuba over-rown by Fidel Castro; Alaska becomes the 9th State of USA; inauguration of the Fifth rench Republic under De Gaulle; the Chinese ccupy Tibet; Dalai Lama flees to India; Bandaranaike, Prime Minister of Ceylon, as sinated; Archbishop Makarios elected President of Cyprus.
1960: Cameroon, Togo, Belgian Congo, C na, Cyprus and Somalia become independ Republics. Congo (Brazzaville), Chad, Cer African Republic and Malagasy become ir pendent. Olympics at Rome (Aug.); Nig becomes an independent Republic in Commonwealth.
1961: Rwanda and Burundi in Africa bec Republics. Sierra Leone and S. Camer become independent; South Africa becom Republic and withdraws from the Comm wealth, Conference of non-aligned nation Belgrade, Syria secedes from the United A Republic, Tanganyika becomes independ within the Commonwealth; India annexes Portuguese enclaves Goa, Daman and D
1962: General Ne Win seizes power in Bur China begins attack on India's northern fr tier (Sept. 19), U Thant elected Secre General of United Nations (Nov. 30).
1963: China and Pakistan sign frontier tre Egypt, Syria and Iraq form Arab Federat Malaya, Singapore and South Borneo fo Malaysian Federation; The assassination President John F. Kennedy in Dallas, Te (Nov 22), Zanzibar becomes independe
1964: Agreement signed between Tangany and Zanzibar forming a new State, Tanza Jawaharlal Nehru, Prime Minister of India, (May 27), Malta becomes independent; So Premier Krushchev ousted; Alexei Kos becomes Premier and Leonid Brezh Secretary of the Communist Party; Olympia Tokyo (Oct.).
1965: Field Marshal Ayub Khan is elec President of Pakistan; Indonesia withdr from UN (Jan. 5); Sir Winston Churchill (Jan. 24); Dr. Albert Schweitzer dies (Aug. Rhodesia seizes independence; Mobutu ta over in a bloodless coup in the Congo.
1966: Army takes over the Government Ghana, deposes President Nkrumah; Suka (Indonesia) hands over power to Army C Suharto (Mar 12); Guyana (Guiana) becor independent.
1967: India signs International Space Treat Moscow; Gen. Suharto becomes Presiden Indonesia; Konrad Adenauer, former W German Chancellor, dies; Nassar blocks gul Aquaba, Israel's vital sea outlet; Eastern Nig secedes to become Biafra Republic. Is

WONDERS OF THE WORLD

1. The Pyramids of Egypt These royal tombs which housed the dead Pharaohs of Egypt are about 70 in number and lie on the west side of the Nile beginning at Gizeh (Gisa) opposite Cairo and extend south for some 60 miles or so They represent 1200 years of Egyptian history

2 The Hanging Gardens of Babylon were near the Euphrates River, in the palace of King Nebuchadnezzar, 60 miles south of the present city of Baghdad, and not far from the eastern border of the Syrian Desert of Northern Arabia

3 The Temple of Artemis (Duma), in Asia Minor at Ephesus, an ancient but now vanished city, was south of Smyrna. It was built in the fifth century B.C. by the Ionian cities, as a joint monument from plans drawn by the architect Ctesiphon.

4 The Tomb of Mausolus, King of Caria, in Asia Minor was at Halicarnassus, on the eastern side of the Aegean Sea. It was built of marble about 352 B.C. by Queen Artemisia

5 The Colossus at Rhodes was a bronze statue of the Greek Sungod Helios, 70 cubits (about 109 feet) high, erected by Charles of Lindus at the port of the City of Rhodes on the island of Rhodes in the eastern part of the Mediterranean Sea

6. The Statue of Zeus (Jupiter) was in the valley of Olympia, province of Elis, 12 miles or so inland from the west coast of the southern peninsula of Greece, which was then called the Peloponnesus

7. The Pharos of Alexandria, a white marble lighthouse or watch-tower on the island of Pharos, in the port of Alexandria, Egypt was completed by King Ptolemy Philadelphus, 265-247 B.C.

Other Wonders:

The Sphinx, near Gizeh in Egypt, is a great wingless crouching lion hewn out of solid rock, 172.5 feet long, and 66 feet high. Between the two extended paws is a granite altar with inscriptions apparently indicating that it was built during the time of the Fourth Dynasty, around 2500 B.C.

The Great Wall of China, built in the third century B.C. extended along the northern frontier of the country, from the northern part of the Gulf of Chihli on the Yellow Sea, north of Peking, in a zigzag course, to Syning, on the border of Turkestan 3219 km long

Stonehenge is a circular assemblage of huge, shaped stones in Salisbury plain about 90 miles south west of London The stones are arranged in two circles one within the other. 1800-1500 B.C.

The Catacombs at Rome were the sepulchres of the early Christians, and consisted of more than 40 groups of labyrinths, or galleries and chambers, covering 615 acres, sometimes going down to 5 storeys (70 feet) below the surface of the ground.

The Circus Maximus at Rome, built 605 B.C. by King Tarquin and rebuilt and enlarged by Julius Caesar could hold 385,000

The Coliseum, or Colosseum at Rome, one of the largest amphitheatres in the world, was begun by the Emperor Vespasian and finished by the Emperor Domitian in 82 A.D. Fifty thousand persons could sit and 20,000 stand in it

Hagia Sophia or the Church of St Sophia at Constantinople (Istanbul) was built as a Christian cathedral by the Roman Emperor Justinian in 531—538 A.D.

The Leaning Tower of Pisa is one of the wonders of the Middle Ages It is a round, 8-storey bell-tower and was built of marble in 1154 A.D., it is 188 feet high Architect Bonannus of Pisa

The Porcelain Tower of Nanking was built in that ancient capital of South China in the early part of the 15th century

The Taj Mahal at Agra, popularly called The Taj, is a masterpiece of architecture that easily takes its place among the Wonders of the World It is a mausoleum built by the Mughal Emperor Shah Jehan over the tomb of his wife, Empress Mumtaz Mahal Its construction was started in 1631 and completed in 1653

Angkor Wat or Nakhon Wat is a temple in Kampuchea, dedicated to Vishnu. It was built during the reign of Suryavarman II. The temple is situated south of the Angkor city which was the capital of ancient Cambodia The city was built between 800 and 1200 A.D.

The Alhambra at Granada is a fortress in southern Spain It was built by the conquering Arab Moors who established a Caliphate in Spain with Cordoba as the first capital When the Christians reconquered Cordoba, the Caliphate capital was removed to Granada

Shwe Dagon or the Golden Pagoda is a Buddhist shrine in the outskirts of Rangoon in Burma It was probably built late in the 13th century or early in the 14th The Pagoda is especially sacred to Buddhists because it enshrines 8 of Buddha's hairs

The Largest Number of Billionaires

Japan has more billionaires than any other country.

Sam Morre Walton, founder of Wal-Mart Stores Inc., may well be the richest American, but there are several Japanese who are richer than him and his fortune pales compared to that of the richest Japanese, Yoshiaki Tsutsumi, a real estate magnate.

While Mr. Walton's net worth is estimated at $45 billion, Mr. Tsutumi's is estimated at $21 billion, Forbes *magazine said*

Forbes published a list of 22 Japanese billionaires, saying there were probably many more. The United States, it said, had 21 billionaires, when families with more than one are counted as a single unit.

Mr. Tsutsumi, 53, oversees Seibu Railway Group, and is Japan's largest private landowner, whose assets include train lines, resorts, 24 golf courses, ski slopes, a professional baseball team and Prince Hotels

Fourteen of the 22 billionaires on Forbes's *list owe the bulk of their fortune's to Japan's overheated real estate market Among them are Taikichiro Mori, Tokyo's biggest private landlord, who has a net worth of $16 billion, and Shigeru Kobayashi, head of Shuwa Co. His net worth is $6 billion, Forbes said.*

Japan's land area is 3 per cent of that of the United States, but its total land value, about $8 trillion, is more than double the United State's

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What do a sultan, two queens, a potato processor and a college dropout have in common?

Billions, according to Fortune *magazine They and 127 other people control the world's billion-dollar family fortunes — 98 of them.*

Heading the list are Sultan Hassanal Bolkiah of Brunei, 41, who is worth $25 billion, and King Fahd of Saudi Arabia, 67, worth $20 billion, Fortune reported in its latest issue.

The youngest billionaire listed was William Gates, 31, of Seattle, Washington, founder of the Microsoft computer software company A Harvard dropout, he according to Fortune is worth $1.2 billion

There are three members of the Mars family, famous for their candy bars, two Rockefellers, August Anheuser Busch Jr and Alfred Henry Heineken, both beer brewers, three Marriotts, of the hotels, and Estee Lauder, 79, the queen of cosmetics And there are two real queens — Elizabeth II, 61, of Britain, with an estimated $7.4 billion, and Beatrix, 49, of the Netherlands, with $4.4 billion

John Richard Simplot, 78, heads the world's largest potato growing and processing outfit, J.R. Simplot Co of Boise, Idaho Fortune says he is worth $1 billion

Kuo-feng is made Chinese Premier; Mrs Gandhi and Brezhnev sign Moscow declaration to further freindship and co-operation (June 11), Vietnam is unified (24); Seychelles becomes independent (29); Airborne Israeli Commandos destroy Ugandan planes, kill 100 Ugandans and free Air France Air-bus passengers from hijackers at Entebe, Uganda (July 4), Over 9000 die in Iran earthquake of June 26 and 28 (8), Exodus by 16 African nations as Montreal Olympics opens reduces the games to a virtual "White affair" (17). US Probe lands on Mars (20); Soares heads first democratic Government in Portugal (23); Non-aligned summit opens at Colombo (Aug: 16), Second World Hindi Conference in Mauritius, Khan Abdul Ghaffar Khan is released in Pakistan (28); Mao Tse-tung dies (Sept: 9), Hua Kuo feng succeeds Mao (9), Mao's widow Mrs Chiang Ching and three top radicals arrested (12), India elected to UN Security Council (23).

1977: Jimmy Carter sworn in President of the United States (Jan. 20), Mohammed Daud sworn in President of the Republic of Afghanistan (Feb 17), Bhutto's People's Party wins landslide victory in Pak Polls (March 8) Maj Gen Ziaur Rahman sworn in new Pak

President (April 21); Leonid Brezhnev elected Soviet President (June 16); Djibouti becomes independent (27). Coup in Pakistan; General Zia-ul-Haque takes over. Bhutto deposed and arrested (July 5); Ruling (Sirimavo's) Party routed in Sri Lanka Poll – Jayawardene becomes Premier (22); Bhutto released. Cyprus President Archbishop Makarios dies (Aug. 3); Ian Smith wins election in Rhodesia (Sept. 1); President Sadat of Egypt makes a historic visit to Israel (Nov 19); Arab front against Egypt formed (Dec 4); Charlie Chaplin dies (25).

1978: Jayawardene sworn in as First President of Sri Lanka (Feb. 4); Military junta seizes power in Afghanistan (Apr. 27); Zia-ur-Rahman wins Bangladesh Presidential election (June 4); Argentina wins World Cup Football beating Holland, 3-1 (25); Coup in South Yemen (26); Army officers seize power in Mauritania (July 10); Commonwealth Games at Edmonton, Canada (Aug. 3); President Jomo Kenyatta of Kenya dies (22); Zia-ul-Haque sworn in as President of Pakistan (Sept. 16); Peter William Botha elected South African P.M. (26); Daniel Arap Moi elected President of Kenya (Oct. 6); Asian Games begin in Bangkok (9).

1979: International Year of the Child opens (Jan. 1); Shah leaves Iran (16); Ayathollah Khomeini returns to Iran after 14 years of exile (Feb. 1); Iran proclaimed Islamic Republic (Apr. 1); Bhutto exeecuted (4); Greenland gets home rule (May 1); Margaret Thatcher becomes the first woman Prime Minister of Britain (4); 'Bhaskara' launched from Soviet Union (June 1); Salt II agreement signed by Carter and Brezhnev in Vienna (18); Skylab plunges down off the western Australian coast (July 11); Mountbatten killed in an explosion off Ireland (Aug. 27); Sixth Non-Aligned Conference opens in Havana (Sept. 3); Emperor Bokassa of the Central African Empire overthrown in a coup (21); Army seizes power in Bolivia (Nov. 1); Iranian students occupy US Embassy in Teheran and holds the residents hostages (4); Muslim extremists seize Kaaba Mosque in Mecca (21); Hafizulla Amin of Afghanistan killed in a coup (Dec. 27).

1980: U.S. halts grain shipments to Russia in retaliation to the latter's occupation of Afghanistan (Jan. 5); Trudeau returns to power in Canada (Feb. 19); Army seizes power in Surinam (25); Jesse Owens, American Olympic Champion, dies (Mar. 31); Jean Paul-Sartre, French philosopher and writer, dies (April 16); Free Zimbabwe born (17); U.S. attempt to free hostages in Iran fails (22); Marshal Tito of Yugoslavia dies (May 4); China admitted to the World Bank (16); China successfully tests long-range rocket (ICBM) (18); Japanese P.M. Ohira dies; Suzuki new P.M. (June 12); Moscow Olympics begin (July 19); Polish workers wrest right to strike (Aug. 30); Regional meeting of Commonwealth Heads of Government (CHOGRAM 2) opens in Delhi (Sep. 4); Hua resigns Premiership of China; Zhao Ziyang takes over (6); Libya and Syria announce merger (10); Quake in Algeria kills 20,000 (Oct. 10); Emergency proclaimed in Sri Lanka (14); Mrs. Bandaranaike stripped of civic rights (16); Kosygin resigns as Soviet Premier (23); Ronald Reagan elected U.S. President in a landslide victory over Jimmy Carter (Nov. 5); Trial of 'Gang of Four' begins in Beijing (20); Coup in Upper Volta (25); Kosygin, former Soviet Premier, dies (Dec. 19).

1981: International Year of Disabled Persons begins (Jan. 1); Left-wing guerillas in El Salvador form Govt. in exile (13); US resumes military assistance to junta in El Salvador (15); Fifty-two American hostages fly out of Teheran after 444 days of captivity; Ronald Reagan takes charge as the 40th President of the United States (22); Ancient flag of the Jaffna Tamil Kings unfurled in Jaffna after 400 years; Roy Panther, amateur astronomer, discovers Panther's comet; Polish P.M. Jozef Pinkowski resigns, Gen. Jaruzelski succeeds (Feb. 10); All political parties in Pakistan dissolved (Mar. 24); Reagan shot at, but survives assassin's bullet (31); "Ordinary People" directed by Robert Redford wins Oscar award for the best film (April 1). U.S: Space Shuttle, Columbia, with two astronauts blasts off from Cape Canaveral (12); U.S. lifts grain embargo against USSR (24); U.S. decides to back Kampuchean rebel forces; (May 3); Socialist Party Chief Francois Mitterrand wins French Presidential election (10); Pope John Paul shot at in Vatican City (13); Pierre Mauroy named French Prime Minister (21); Zia-Ur-Rahman, President of Bangladesh and eight aides assassinated, Emergency proclaimed (30); Sri Lanka proclaims state of emergency (June 4); House of Commons passes Britain's controversial new Nationality Bill (5); Chinese Communist Party Chairman Hua Guofeng is replaced by Hu Yabobang (28). Mrs. Sandra Day O. Connor appointed the first woman judge of the U.S. Supreme

Court (July 7); Belize becomes independent (Sept. 2); TGV, the world's fastest train at 270 km per hour makes inaugural trip from Paris to Lyons (22); Egyptian President Anwar Sadat assassinated by a group of soldiers during military parade in Cairo (Oct. 6); Hosni Mubarak sworn in Egypt's fourth President (14); Socialist forces swept back to power in Greece (19); Cancun summit of 22 Government leaders ends on a note of uncertainty and lack of agreement (24); Antigua and Barbuda become independent (Nov 1); U San Yu, retired Army General, succeeds U Ne Win as President of Burma (9); Javier Perez de Cueller, 61-year-old former Chief delegate of Peru, elected U.N. Secretary-General to succeed Dr. Kurt Waldheim (Dec. 12); Army takes over in Poland, emergency proclaimed and Solidarity leaders put in jail (13); Israel enacts new law to annex Golan Heights, occupied Syrian territory (14); U.S. President Reagan orders sanctions against Poland (24); Ft. Lt. Jerry Rawlings returns to power in Ghana overthrowing Dr. Limann in a military coup (31).

1982: Egypt and Israel agree on final withdrawal of Israeli forces from Sinai (January 9); U.S. allows passage to Khalistan protagonist Jagjit Singh in spite of India's opposition (Feb 9); India agrees to give long-term aid to Vietnam (13); Sri Lanka shifts capital to Jayawardenapura (15); Zimbabwe Prime Minister Robert Mugabe sacks Joshua Nkomo, veteran nationalist from cabinet (17). South-South Conference inaugurated in New Delhi—44 nations take part; Julius Nyerere, Tanzanian President, is presented the 1981 Third World Prize in New Delhi (22); Soviet spacecraft Venus-13 lands on Venus (March 1); Charles Haughey becomes Irish Prime Minister (9); National Liberation Council seizes power in Surinam (11); Britain and the Vatican resume full diplomatic relations after four centuries (19); Switzerland decides to join United Nations (23); Lt Gen. H. M. Ershad seizes power in Bangladesh; Coup in Guatemala: Junta led by Gen. Efrain Rios Mont (24); A. F. M. A. Choudhary sworn in as Bangladesh President (27); Polling in El Salvador amidst fighting (28); Argentina occupies Falkland Isles, a British colony in South Atlantic (April 2), British fleet leaves for Flaklands (6); 10,000 feared dead in the eruption of the Chichonal volcano in Mexico (7); India signs deal for the purchase of 40 Mirage-2000s with France; Art Buchwald and John Updike win Pulitzer awards (15); A new constitution for Canada comes into force (April 17); Dr. Mahathir Mohammed scores big win in Malaysian elections (23); Egypt officially gets back Sinai peninsula, 15 years after Israeli occupation (25); Britain recaptures South Georgia island off Falklands; Argentine Commander surrenders (26); Sea Law convention adopted (30); Britain and Argentina accept UN proposals to end hostilities (May 6). U.K. Forces attack Falklands capital; Luis Alberto Monge becomes Costa Rican President (9). A manned Soviet spacecraft docks with orbiting Salyut-7 (15). U.K. troops land on Falklands (21). Iran announces recapture of Iraqi-occupied city of Khorramshahr after 20 months of Gulf war (24) Yasser Arafat, leader of the P.L.O leaves Beirut (30). Argentina surrenders to Britain in the Falklands (15). PLO agrees to leave Beirut (30). Miguel De La Madrid elected President of Mexico (July 5) U.N. World Assembly on Ageing unanimously adopts 48-point plan of action (Aug 9) Soviet Union launches into space a woman cosmonaut for a rendezvous with the orbiting space station Salyut 7 (18) P.L.O. pull out from Beirut begins (21). Successful trial run in Japan of a new extra fast remote-controlled train which floats above the line on a magnetic field (Sept. 2) World's highest submarine mountain discovered in the Samoan Airchipelago by Soviet research ship 'Callisto' (12). Lebanon's President-elect Bashir Gemayel (34) is assassinated in a bomb explosion (15) Mass massacre in two Palestinian refugee camps, Chatilla and Sabra, in W. Beirut (18).

Conservative Opposition leader Helmut Kohl is elected Chancellor of W. Germany ousting Helmut Schmidt midterm through a parliamentary vote (Oct. 1) Poland's independent trade union Solidarity is dissolved by an Act of Sejm, the Parliament; U.S. experiences the worst phase of unemployment (10.1 per cent or 11,260,000 people out of work) the highest in 42 years (9) Halley's comet sighted at Mt Palomar near San Diego for the first time since it last zipped by the Earth in 1910. Soviet President Leonid Brezhnev (75) dies in Moscow (Nov 10). Lech Walesa, leader of Poland's outlawed Solidarity free trade union, is released after 11 months of internment. Yuri Andropov succeeds Brezhnev as General

Secretary of the Soviet Communist Party; Astronauts of U.S. Space Shuttle Columbia release Canadian satellite fulfilling the first commercial contract to launch satellites (12). Wu Xuequan replaces Huang Hua as Chinese Foreign Minister (19). Yasuhiro Nakasone is elected Japan's Prime Minister (26). Row in the U.N. over who discovered America puts off decision on whether to celebrate 500th anniversary of the arrival of Christopher Columbus in the new world; World Premiere of Sir Richard Attenborough's 'Gandhi' in New Delhi (30). Sixty-one-year-old Barney Clark, given an artificial heart (Dec. 2). China adopts new constitution that replaces Maoist principles (4) China issues two stamps to mark the 40th anniversary of the death of Dr. Dwarakanath Kotnis; Soviet cosmonauts, Anatoly Berezevoi and Valentin Lebedev return to earth after 211 days in space, a new endurance record (10). Thousands of women from 15-km human chain around U.S. Air Force base in Berkshire, U.K. in an anti-nuclear protest (12) The big green gate between the British colony of Gibraltar and Spain is reopened after 13 years (14).

1983: OPEC forced to cut prices as Nigeria cuts oil price (Feb 21). Bob Hawke, Labour Party leader is Australia's Prime Minister (Mar. 5). Seventh Non-aligned summit opens at New Delhi, Indira Gandhi appeals for reversal of arms race (7). Prime Minister Indira Gandhi and Minister in charge of Family Planning in China, Qian Xiwzhong, win first UN population award (19). Barney Clark, world's first and only recipient of a permanent artifical heart dies (23) Border between Morocco and Algeria re-opened after a seven-year closure (April 5). Vietnam starts partial withdrawal of forces from Kampuchea (May 2). Newly discovered comet streaks to within five million km. of the earth, closer than any other comet in more than 200 years (11). Soviet Union develops very advanced fighter in MIG series, a match to U.S. built F-16 (19). Prime Minister Indira Gandhi addresses UNCTAD in Belgrade (June 8). Three South African freedom fighters hanged in Pretoria (9). British Prime Minister Margaret Thatcher, leading the right wing Tories, returns to power for another five-year team (10). Pioneer 10 explorer leaves Earth's solar system to begin its endless voyage among the stars (13). Li Xiannian (78) elected Head of State by the sixth National People's Congress (China's Parliament) (19). Sheil Cameron, first woman Vicar General in th Church of England (July 7). About 20,00 persons, displaced and rendered homeles following riots in Colombo (27). Sudanes President Mr. Jaafar Nimeri frees all 13,00 inmates in Sudan's jails (30). Members of Si Lanka's main minority party, the Tamil Unite Liberation Front (TULF) declares boycott c parliament following new legislation on oat against separation (August 7). Philippine opposition leader Benigno S. Aquino Jr. r turns from voluntary exile and is shot an killed when he touches home ground (21) Space Shuttle Challenger takes off from Cap Kennedy with Indian Satellite INSAT-1I abroad for deployment in space (30). Soutl Korean Boeing 747, with 269 persons abroac shot down by Soviets into Japan sea; Caribbea Islands of St. Kitts and Nevis become th world's newest nation, after gaining independ ence from Britain (Sept. 19). Julius Nyerere Tanzanian President, awarded the Nanse Medal, the highest honour of the UN Hig Commissioner for refugees. Lech Walesa, lead er of the outlawed Solidarity Free Trade Unio in Poland, awarded the 1983 Nobel Peace Priz (Oct. 3). Willian Golding, British novelist, win 1983 Nobel prize for literature (7). The forme Japanese Prime Minister, Kakuei Tanaka foun guilty of taking a 500-million-Yen (Rs. 2. crores) bribe from the Lockheed Aircra Corporation and sentenced to four years i prision and a fine equivalent to the bribe. Pro Subramanyam Chandrasekhar, India-bor American, shares 1983 Nobel Prize for Physic with fellow American Prof. William Fowle (19). United States and a coalition of smal Caribbean countries invade Grenada to ejec the military junta in power there (25). Th Philippines President, Ferdinand Marcos names the Prime Minister Cesar Virata hi successor (31). The Turkish-controlled area o Cyprus declares unilateral independenc (Nov. 15). Week-long Commonwealth summi opens in Delhi (23). Queen Elizabeth invest Mother Teresa with the Order of Merit (24) Gen. Hussain Ershad proclaims himself presi dent of Bangladesh (December 11). The rulin Liberal Democratic Party in Japan fails to wi majority in Parliament, but forms Governmen with the help of independents; former Prim Minister Tanaka, convicted on a briber charge, re-elected from his constituency (19)

GULF WAR COMPLETES SEVEN YEARS

The banks of the Euphrates and the Tigris which were the cradles of ancient civilizations is the scene of one of the bloodiest and longest wars in history. Mesopotamia — the site of glorious cities and Persia — the beacon of progress for centuries are destroying themselves with this war. The desert resounds with the echo of gunfire and the atmosphere is vibrant with human misery. The most gruesome war since World War II — Iran-Iraq war completed seven years on 22nd September. According to a rough estimate 3½ lakhs of Iranians and 2½ lakhs of Iraqis have been killed so far. Still the carnage continues — without a hope of settlement. It is really a war of attrition.

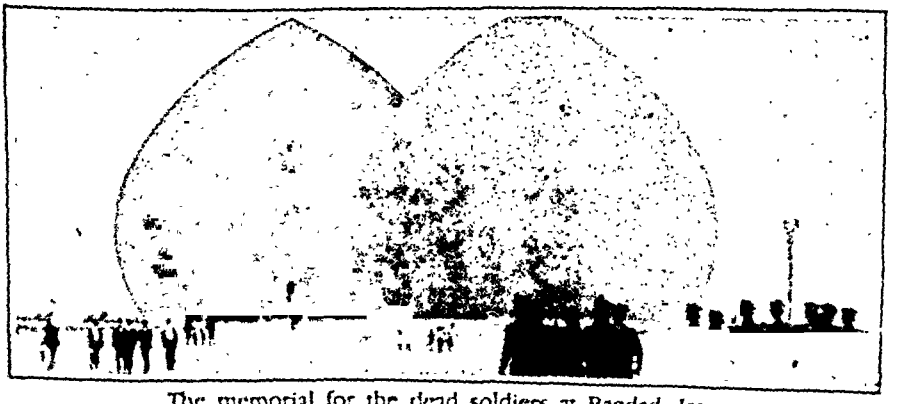
This conflagration is really a clash of wills between 87 year old Ayotollah Rubol-la Khomeini of Iran and 53 year-old Sadam Husein of Iraq. All the major powers of the world tried and failed to find a just solution to this conflict. Even the ultimatum of the big two and the call for a ceasefire by the security council have not produced an impact. Six crores of people are merely pawns in a game of power struggle between two individuals.

On the ostensible excuse of an old boundary dispute Iraq bombed Iranian cities on 22nd Sept. 1980. Along with this in a surprise move they captured the port-city of Khorram Sahar. The territory under dispute is the age old waterway — Shatt-al-arab-a swampy area separating the two countries. Iran exercised sovereignty over Shatt-al-arab when British was administering this region. When the Shah of Iran abdicated and Khomeini took over Iraq thought it could take advantage of the unsettled conditions in Iran to capture this waterway.

Another reason is religious in character. Both Iran and Iraq have a Shia Muslim majority — while Sadam Husein himself is a Sunni. Khomeini being the undisputed leader of Shia Muslims, Hussain feared that he would incite Iraqi Shias also against him. Iran and the arab world have been traditional rivals and hence the arab countries sided with Iraq. Most of them were wary of Khomeni's Shia fundamentalism.

This war has drained the resources of both countries — oil production in both have fallen drastically — Iraq has a national debt of 35,000 crore dollars and Iran's budget deficit this year is 800 crore dollars.

Still the war goes on causing destruction and human misery.



The memorial for the dead soldiers at Bagdad, Iraq

Yasser Arafat and his supporters sail out of Lebanon, as a result of attacks by the rebel faction of the Palestine Liberation Organisation (20) U.S. notifies withdrawal from UNESCO (28).

1984: U.S. Supreme court rules that the use of video records at home to tape television programmes and movies does not constitute an offence under the federal copyrights law (Jan. 18); U.S. conducts its first test of a missile with the potential to destroy satellites (ASAT) in outer space; Johny Weissmuller (79), five time Olympic swimming champion, dies (22); "Alice in Wonderland" in reality is Queen Victoria's autobiography, concludes a group of researchers after 11 years of study (Feb. 5); Astronauts Bruce McCandless and Robert Stewart walk in space 280 km above the earth to test "Buck Rogers" backpacks in the first free flights through space (7); Soviet President Yuri Andropov dies (10); Konstantin Chernenko becomes new Soviet Communist Party Chief (13); Mikhail Sholokov, (78), Nobel Prize-winning author of "And Quiet Flows the Don", dies (21). Mother Teresa University, Kodaikanal, first Women's University in Tamilnadu, inaugurated by Mother herself (Mar. 2). Mauritius Prime Minister Aneerood Jughnnauth inaugurates the first international conference on Sanskrit at Mahatma Gandhi Institute in Port Louis (15). Squadran leader Rakesh Sharma becomes India's first space-man when he was launched abroad Soyuz T-11 from Baikhnur Cosmodrome in Kazakhstan along with two Russians (April 3). Kerala Government decides to drop Silent Valley Project and declares the entire area a National Park (13) Astronauts on board Space shuttle Challenger successfully retrieves disabled satellite Solar Max, repairs it and deploys it again completing world's first in-orbit retrieval and repair (12). U.S. and China agree on nuclear co-operation (24) Sultan Iskander of Johore sworn in as the eighth King of Malaysia (26) Phu Dorjei conquers Mount Everest without oxygen- a rare feat (May 9). Miss Bachendri Pal becomes the first Indian woman to conquer Mount Everest; Dr Richard Von Weizsaedear, former Mayor of West Berlin, elected sixth President of W.Germany (23). Indian Army takes control in Punjab to stem terrorist violence (2) Army storms the Golden Temple and other religious places to flush out terrorists, over 325 including Jarnail Singh Bhindranwale killed (6) Vietnam withdraws about 10,000 of its troops stationed in Kampuchea (15). John Turner sworn in as Canada's Prime Minister (30). Farooq Abdullah's Ministry dismissed in Srinagar and G.M. Shah sworn in as Chief Minister (July 2). Golden Temple at Amritsar re-opened to pilgrims (27). Lange's Labour Party sweeps to land slide victory over Robert Muldoon's ruling National Party in New Zealand (14) Laurent Fabious appointed new PM in France (17). R. Venkataraman elected 8th Vice-president of India (22). Brian Mulroney wins general election in Canada; Prime Minister P.W. Botha elected President of S.Africa (5) North and South Koreans open borders for the first time since '45 (30). Unilateral ceasefire by Mizo rebels ordered by Mr. Laldenga (October 2). Indira Gandhi assassinated by 2 of her own security guards at her residence in New Delhi, Rajiv Gandhi sworn in as PM (31). Violence takes a toll of about one thousand in New Delhi following the assassination of Indira Gandhi; Regan re-elected US President with a record margin (Nov.7). Rajiv Gandhi elected Congress (I) President (12). Tamil Nadu Assembly dissolved (15). Andhra Pradesh Assembly dissolved; Rama Rao seeks fresh mandate (22). Bob Hawke wins general election in Australia (Dec.1). 2,500 persons killed due to inhalation of poisonous gas from the Union Carbide Plant of Bhopal; China and Britain sign agreement to transfer Hong Kong to China in 1997 (19). Gen. Zia-Ul-Haq seeks fresh mandate for five years as President (20). Indian Supertanker 'Kanchenjunga' hit in the Gulf by missile (25).

1985: The worst ever year for commercial aviation — around 2,000 killed (Jan. 1) Hun Sen elected Prime Minister of Kampuchea (14) Brazil elects Tancredo Neves to be its first civilian President in 21 years (15). Israeli army begins pullout from Lebanon (20). David Lean's film of E. M. Forster's novel 'A Passage to India' wins 3 Golden Globes at Hollywood (26) Oxford University votes against honorary degree for British Prime Minister Margaret Thatcher (29). Pakistan President Mohammed Zia-ul-Haq dissolves the Cabinet, following the defeat of 6 Ministers in national elections (Feb. 26). British miners end their year-long strike; Earthquake kills more than 20 people in Chile (Mar. 3) Soviet President Konstantin Chernenko dies Mikhail Gorbachev elected Gener

al Secretary of the Communist Party (11). In Geneva the United States and the Soviet Union reopen arms talks after a chilly gap of 15 months (12). International science ex-position opens in Tuskuba, Japan (16). Gen. H. M. Ershad claims a massive mandate to continue as President in a referendum in Bangladesh (21). Gen. Mohammad Zia-Ul-Huq sworn in President and Mohammad Khan Junejo Prime Minister of Pakistan (23). *Amadeus* wins Oscar award for best picture (26). Sudanese president Jaafar Nimeiri overthrown in bloodless coup. Armed forces chief Abdel Rahaman Swareddahab comes to power (April 6). US senator Jake Garn goes into orbit with six others on space shuttle Discovery (12). American climber Richard Bass, 55, becomes the oldest man to reach the summit of Mount Everest (30). Fiftythree spectators killed in a fire at a football stadium in Bradford, England (May 11). Cyclonic storm and tidal waves hit coastal districts of Bangladesh. Thousands perish (24). Italy's Juventus beats England's Liverpool FC 1-0 in the European Cup football final in Brussels after clashes, stampedes and the collapse of a wall in the stands killing 41 persons and injuring about 350 (29).

Alan Garcia elected President of Peru (June 1). Adreas Papandreou re-elected Prime Minister of Greece (2). Mohammad Zia-Ul-Haq becomes the first President of Pakistan to visit Bangladesh (5). Francesco Cossiga elected President of Italy (24).

Andrei Gromyko elected President of the Soviet Union (July 2). Robert Mugabe voted back to power in Zimbabwe (6). West German Boris Becker beats eighth seeded American Kevin Curren 6-3, 6-7, 7-6, 6-4 in the final of the Wimbledon tennis championship to become the first unseeded player to win the title. At 17 he is also the youngest and is in fact younger than the junior champion (7). The Rainbow Warrior, flagship of the ecological group Greenpeace, sinks after a bomb explosion, in Auckland harbour, New Zealand. One crewman is killed (10). Emperor Hirohito becomes the oldest of 124 successive Japanese monarchs, crossing the 30,756 days that the 108th Emperor Gomizunnoo lived (13). World women's conference opens in Nairobi (15) President Abdou Diouf of Senegal elected chairman of the Organisation of African Unity Dam burst kills 260 in Italy; Johnny, the only creature in the world with a lioness for a mother and a leopard for a father, dies in a zoo in Japan, at the ripe old age of 24 — around 112 years in human terms. He was one of seven "leopons" born since 1959. All the others were dead by 1977 (19).

Telecast Worldwide from London and Philadelphia, the 15 hours *Live Aid* concert, raises millions of dollars for famine relief in Africa (27). Lt. Gen Tito Okello sworn in President of Uganda after Milton Obote was overthrown by rebel soldiers (29). Victor Pas Estenssoro elected President of Bolivia (Aug. 5). 43rd International Eucharistic Congress opens in Nairobi (11). Writer Shiva Naipaul dead (13). Ali Khamanei re-elected President of Iran (19). Samantha Smith, the US school girl who wrote to Soviet President Yuri Andropov about her fears of nuclear war and visited the Soviet Union on his invitation, dies in an air crash in Auburn, USA (26) Maj. Gen. Ibrahim Babangida becomes President in Nigeria (27). Wee Kim Wee elected President of Singapore (30)

A robot submarine from the US navy ship Knorr locates some 800 km south of Newfoundland, the wreck of the Titanic, which hit an iceberg and sank on April 14, 1912, taking 1,513 lives (Sept. 1). Zimbabwe Prime Minister Robert Mugabe elected chairman of the Non-Aligned Movement (8). Olof Palme re-elected Prime Minister of Sweden (16). French Prime Minister Laurent Fabius admits that Govt commandos sank the Rainbow Warrior (22)

Israeli warplanes bomb the PLO head quarters in Tunis (Oct. 1) Four gunmen who hijacked the Italian cruise liner Achille Lauro in the Mediterranean and killed crippled Jewish-American passenger Leon Klinghoffer surrender to Egyptian authorities at Port Said (9) Film maker Orson Welles dies in Los Angeles (11) South Africa hangs black poet Benjamin Moloise, 28 for the murder of a policeman (18) The Commonwealth summit at Nassau in the Bahamas (21) Jose Biro inventor of the ball point pen dead [illegible] Greenpeace protest flotilla fails to stop a French nuclear test at Mururoa Atoll [illegible] South Pacific (24) Three kidnapped [illegible] diplomats released in Beirut [illegible] Mwinyi succeeds Julius Nyerere as President [illegible] Tanzania. Anibal Cavaco Silva [illegible] Minister of Portugal (Nov. [illegible] beats fellow Soviet Player [illegible] 13-11 to become the [illegible] chess champion (9) [illegible]

with Ireland, which for the first time gives Dublin a say in the affairs of Northern Ireland (15). Reagan and Gorbachev meet in Geneva — the first superpower summit in six years (19). French secret service agents Dominique Prieur and Alain Mahfart sentenced to 10 years in a New Zealand prison for the sinking of the Rainbow Warrior; Ayatollah Hossein Ali Montazeri to succeed Ayatollah Ruhollah Khomeini in Iran (22).

The Guinness Book of Records enters its own name as the biggest selling copyright book (Dec. 6). Vinicio Cerezo elected President of Guatemala (9). Jailed South African leader Nelson Mandela's wife Winnie released in Johannesburg after being arrested and held over night (23) Cartoonist Joseph D. Oriolo, who created "Caspar the friendly ghost", dead (25) Martial law lifted in Pakistan (30)

1986: Sri Lanka Government restores civic rights of the former Prime Minister, Mrs Sirimavo Bandaranaike after more than five years; Pro-government politicians in Bangladesh form a new party called 'Jatiya Party' (Jan. 1). U.S. imposes economic sanctions again Libya in retaliation to Libya's support for terrorists (7). U.S. Solar system probe 'Voyager 2' discovers six new moons of the planet Uranus, making the total to 12; Pakistan formally adopts Muslim League as the country's ruling party (17). Britain and France decide to build a twin rail tunnel across the channel at a cost of $2.3 billion (19). Martin Luther King, the black leader assassinated in 1969, honoured with a federal holiday on his birthday; Ivan Lendl beats Borris Becker to clinch the $500,000 Nabisco Masters Tennis (20). America's Voyager-2 Space craft finds two more tiny moons of planet Saturn, bringing the total to 15. (23) American Sapce Shuttle, Challenger explodes after 75 seconds of its launching from Cape Canavaral, all the seven on board including the school teacher, Sharon Christa McAuliffe killed. Former Defence Minister and Commander of the rebel National Resistance Army Yoweri Musevini takes over as President of Uganda; Samson Kisekka named Prime Minister (29).

The Nobel Peace Prize winner, Alva Myrdal (84) dies in Stockholm; USSR retains Nehru Gold Cup Football Championship defeating China 1-0 at Trivandrum (Feb. 2). Oscar Arias (45), London-trained economist becomes the youngest Chief Executive of Costa Rica when he swept the Presidential elections; Mother Teresa's Missionaries of Charity opens its first convent in North America in San Francisco (3). Philippines goes to poll to elect New President; Embattled, President-for-life Jean Claude Duvalier (34), flees Haiti (7). Australia wins the Benson and Hedges one day cricket tournament by defeating India (8). Pope John Paul II and the Arch Bishop of Canterbury, Dr. Robert Runcie meet at the Arch Bishop's House, Bombay; Former Prime Minister, Haider Abubaker Al-Attas, 47, named the new President of South Yemen (8). Anatoly Shcharansky, the Soviet human rights activist, is freed during a East-West prisoner swap at Berlin (11). Dr. Mario Soares, elected first Civilian President of Portugal in 60 years; Soviet Union rehabilitates nobel prize-winning novelist, Boris Pasternak (16). Soviet Union launches Mir (Peace), new Space Station, more advanced than the 1982 Salyut-7 (20). Chris Lloyd wins the $1.8 million International Players Tennis Championship (23). In Philippines, Mrs. Corazon Aquino, 53, sworn in as President. Ferdinand Marcos flees into exile. Swedish Prime Minister, Olof Palme, 59, shot dead (25).

Queen Elizabeth II gives formal assent to the Australian Act abolishing all remaining legislative, judicial and executive links of the country with Britain; Deputy Prime Minister Ingvar Carlson takes over as care-taker Prime Minister in Sweden; India clinches Hockey series with Pakistan (3-2) (Mar. 2). Mikhail Gorbachev re-elected General Secretary of the Soviet Communist Party for five years (6). South Africa lifts seven-month old stae of emergency enforced in parts of the country rocked by anti-apartheid violence (8). The Zimbabwe opposition leader, Joshua Nkomo announces rapprochment with his long time foe, Prime Minister, Robert Mugabe in merging their Parties (9). Shuttle Challenger's crew compartment with the remains of the seven astronauts inside found in the Atlantic ocean (10). U.S. rejects six world leaders' plea for halting nuclear tests (11). Ingvar Carlson, Social Democratic Deputy Prime Minister, elected Prime Minister of Sweden (12). Corazon Government in Philippines freezes Marcos's assets; Soviet Space vehicle, Soyuz-T 15 reaches space with two cosmonauts on board—Leonid Kizim and Vladimir Solvyov. Spaniards vote in favour of remaining in NATO (13). Europe's Giotto space probe runs into a

Glasnost and Perestroika, those seemingly tepid streamlets released by Mr. Mikhail Gorbachev in 1985, are rapidly turning into a roaring river.

One is astonished at today's ruthless criticism in the Soviet press of features and institutions once thought to be indigenous to the Soviet system. Nothing seems sacred. The great repository of wisdom, the Communist Party, is challenged on its "infallibility'. Collectivisation of agriculture is denounced as a criminal mistake.

Economic reforms are the centrepiece of Perestroika *("restructuring"). None of the plans will prove their mettle, as Soviet economists acknowledge, in less than five to ten years. Nevertheless, there is no sign of retreat.*

The same goes for political and legal reforms. There have been calls for abolishing laws dealing with political offenders and homosexuals, for an end to the abuse of psychiatry, for more independence of trade unions. Many human rights activists have been released. The editor of Glasnost, *a journal edited by former political prisoners, was told to apply for registration and financial support from the state.*

Glasnost and Perestroika

Economists the world over are keenly watching the Soviet industrial scene, where a variety of 'market socialism' is being introduced and a "package" of banking and financial reforms promised for the benefit of entrepreneurs. Words like profit, capital formation and reinvestable surpluses, hitherto forming part of the capitalist vocabulary, are the new 'in' words.

The guidelines issued under perestroika *are clear: individual Soviet enterprises must aim at being self-supporting and self-financing: state subsidies are to be cut as units learn to make their own profits, meet their financial commitments to the state and use their own profits for expansion and social programmes.*

The Soviet machine-building sector provide an example. From its projected 20.7 billion roubles profit for 1988, it would have to contribute to the state exchequer 9.2 billion roubles (including 4.5 billion roubles' for raw materials and overheads). The balance of 56 per cent (11.6 billion roubles) will remain with the industries for their own expansion, reinvestment or social programmes.

Perestroika for the Soviet industry thus visualises unit-wise profits, capital formation and investible surplus. A network of industrial credit banks throughout the Soviet Union is proposed. Indeed, banking is now visualised in Soviet industry as "a lever to promote profit-motivated performance of industries". "Sick" units may continue depending on state assistance for a while, but the lesson is clear: profit or perish.

A remarkable token of Mr Gorbachev's earnestness is that by 1988, each of the Soviet government's 22 industrial ministries and their 30 operational agencies are expected to become self-financing and self-supporting. World-wide interest in the way perestroika operates on the Soviet shop-floors has been aroused [illegible] because the 30 operational agencies of government account for [illegible] per cent of national industrial production. [illegible]

wall of dust and damages its Camera as it reaches an estimated 523 km past the nucleus of Halley's Comet. The Soviet Space craft Soyuz T-15 with two cosmonauts on board docks with the orbiting Space Station 'Mir' (14). Swiss voters in a national referendum, overwhelmingly reject their country's entry into the United Nations (16). President Ershad and opposition parties in Bangladesh agree to hold parliamentary elections on May 7 (22); Kenya's John Gugi wins the World Cross country championship at Switzerland; Zola Bud retains the women's title (23). Martina beats Hana Mandlikova to win the Women's Tennis Championship at New York in 4 sets—an unusual happening in Women's Tennis in 85 years (24); US-Libya locked in battle off Sidra Gulf. US Sixth Fleet knocks out Libyan missile launch bases and sinks two of their gun boats. 'Out of Africa' directed by Sydney Pollack wins seven Oscars at the 58th Academy Awards. William Hurt adjudged best actor and Geraldine Page best actress (24). Libya threatens to extend its 'holy war' against the U.S. beyond the Gulf of Sidra by striking at American military bases across the Mediterranean; Corazon Aquino of Philippines abolishes 190 member National Assembly under an interim constitution. Swiss Government freezes all assets belonging to Marcos family (26).

Union Carbide Corporation fined a record $1.38 million (about Rs. 1.7 crore) for 221 safety violations at the multi- national's chemical plant at the Institute in West Virginia, USA (Apr. 2). Barber Conable (63), nominee of United States, elected President of World Bank in place of retiring A.W. Clausen (5). Franc devalued by 58 per cent against the Deutsche Mark (7). USSR retains the Kings Cup Amateur Boxing Championship, India's Jaipal Singh wins the gold in the Super Heavyweight section (9). The U.S. Sixth Fleet reaches within striking range of Libya awaiting commands (13). The Heads of the Governments of India, Argentina, Mexico, Greece, Tanzania & Sweden — constituting the six-nations for continental peace initiative—call for another American-Soviet summit (14). U.S. bombs Tripoli, the capital of Libya; Foreign Ministers of Non-aligned countries condemn American attack and calls for immediate halt to further US military operation (15). Shooting breaks out in Tripoli; UN and NAM condemn US attack on Libya. Libya destroys telecommunication installations in the Italian island of Lampedusa in retaliation; Argentina decides to shift the capital to centrally placed Rio Negro from Buenos Aires (16). Pakistan grabs a sensational last ball victory over India in the final of the inaugural Australasia Cup; 3 Californian journalists who exposed corruption in the Philippines get 'Pulitzer' prize in the 70th year of awards (18). NAM delegates meet Ghaddafi at Tripoli and expresses solidarity with him against US bombing. Australian World Champion Robde Castella becomes the third fastest marathoner in history by winning the 90th Boston Marathon (21). US, Britain and France join in vetoing a non-aligned resolution in the security council condemning US air attack on Libya (22). Botha Government abandons enforcement of Pass laws which for decades restricted the presence of blacks in white areas (23). 18-year old Mswati III became world's youngest ruler when he was crowned King of Swaziland at a ceremony in Mbabane (26). Moscow reports nuclear leak in Chernobyl Power Station; Emperor Hirohito of Japan completes 60 years of rule (29).

Ann Bancroff, 30, of the US becomes the first woman to reach N. Pole (May 2). Norway gets a woman Prime Minister, Gro Harlaus Bruntland, 47; Zeshan Ali (India) becomes the Asian Junior Tennis Champion defeating Chung Tze Ming (Taiwan) at Jakarta (4). Leaders of seven major industrial nations end a three-day summit at Tokyo by pledging new efforts to quell turbulent currency markets (6). Violence mars Bungladesh general elections to choose a 300 member Parliament (7); Britain's House of Commons passes a package deal providing for a new 'British National Overseas' status for Hong Kong's British Dependent Territory citizens numbering 2.5 million (14). South Africa raid on ANC bases in the frontline states of Zambia, Zimbabwe and Botswana (18); Sri Lankan security forces launch major offences in Jaffna, 90 killed; Benazir Bhutto elected co-chairman of Pakistan People's Party (19). Tamil militants launch reprisal raid in Trincomalee Sinhala settlement, killing 30 (25). India win the hocky test series against Malaysia (4-0) (30). Forty nine developing countries sign accord to launch the first round of negotiations on the exchange of trade concessions within the Global System of Trade Preferences (GSTP); An European Ariane-2 rocket carrying

a telecommunication satellite blown up in mid-flight by controllers after its third stage failed to ignite (31).

Saudi Arabia devalues its currency by 2.7 per cent, the revised value of the Saudi Riyal being 3.75 dollars instead of 3.65 dollars (June 2). The death toll of Chernobyl nuclear disaster rises to 25 (4). Ramesh Krishnan wins the men's grass court tennis title at Beckham beating Danie Visser (S. Africa) (8). Kurt Waldheim elected President of Austria, amidst controversy that he was an "unrepentant Nazi", Israel recalls envoy in Vienna; The Rogers commission finds that the destruction of Challenger and the death of its seven crew members had a single cause—the failure of seal in the shuttle's booser rocket (9). South Africa declares nation-wide state of emergency just before the 10th anniversary of the 1976 Soweto uprising; The Commonwealth Eminent Persons Group concludes that a negotiated settlement in S. Africa is impossible (12). Poland, Eastern Europe's most debt-ridden country rejoins international Monetary Fund as its 151st member (13). The Head of the Chernobyl nuclear power plant sacked over the April 26th accident, that spread atomic radiation over Europe; India finishes 3rd behind Thailand and Singapore in the International dragon boat race at Singapore (15). Blacks launch nation-wide general strike to commemorate the 10th anniversary of riots in Soweto that galvanised the anti-apartheid struggle (17). Poland, a Charter member, readmitted to World Bank (25). The US Congress ends three years of resistance to military aid for Nicaraguan rebels and votes its approval for a $100 million aid package; Nigerian Oil Minister, Rilwanu Lukman, elected Chairman of OPEC (26). World Court denounces the US backing for Contra rebels trying to topple the leftist Government in Nicaragua (27). Argentina wins the 13th World Cup soccer championship defeating West Germany (3-2) at Mexico City (29).

Zimbabwe announces that it intends to abolish the 20 reserved seats for whites in the 100-seat Parliament; 'Sport- Aid' nets $20 million for Africa's aid (July 2). China devalues the renminbi (Yuan) by a record 15.8 per cent against major foreign currencies; The Statue of Liberty officially re-opened to the public by the US First Lady, Mrs. Nancy Reagan, Martina beats Hana to clinch her 7th Wimbledon title and the 5th in succession (5). Boris Becker retains the Wimbledon crown beating top seeded Ivan Lendl (6). India wins rubber in the test series in England (2-0) (8). The Vietnamese Communist Party elects President Truong Chinh, 80, as its leader succeeding Le Duan who died (14). Ian Martin, 39, of Britain appointed Secretary General of Amnesty International; India's Sandya Agarwal hits the highest test score (190) ever by a batswoman in the 3rd Women's Cricket Test at Woster against England (15). USA beats USSR (87-85) to win the World Cup Basketball at Madrid (21). King Hassan II of Morocco resigns as Chairman of the 21-member Arab League as a consequence of adverse Arab reaction to his effort to mend fences with Israel (27).

U.S. President authorises the sale of subsidised wheat to the Soviet Union; Malaysia wins the 30th Merdeka Cup Football defeating Czechoslovakia (3–0); India bows to the Czech in the semifinals (Aug. 3). The National Front coalition government of Prime Minister Dr. Mahathir Mohammed returns to power in Malaysia (4). Barring Britain, Commonwealth Mini Summit in London adopts new sanctions against South Africa (5). South Africa clamps counter sanctions on Frontline states (6). The six nation summit of India, Sweden, Mexico, Tanzania, Argentina and Greece at Ixtapa, Mexico urges nuclear sanity in the international system (8). Dr. Joaquin Balaguer sworn in as the 64th President of the Dominican Republic (10). The US snaps defence ties with New Zealand as a consequence of the latter's refusal to allow nuclear-armed and nuclear-powered US ships entry in their waters (12). 155 Sri Lankan refugees from W. Germany admitted to Canada when they arrive in boats on the shores of New Foundland (14). Olympic Champions USA bags the World Women's Basketball title beating USSR (108-88) (17). India's D.V. Prasad and Jayasree Khadilkar win the Commonwealth Chess Championship (20). Ian Botham breaks the world test-wicket-taking record during the 3rd Test against Newzealand at the Oval. He moves past Lillie's record of 355 by dismissing Bruce Edgar and Jeff Croue (21). Volcanic gas leak kills 1200 in the north-west of Cameroon. Holland retains the World Women's hockey title by defeating Olympic champions West Germany (3-0) (25). 21 blacks killed in clashes with police at Sebokeng, South Africa (27). West Germany

imposes stringent visa restrictions to curb the flow of asylum seekers from third world countries (28). Bhagyasree Sathe becomes the first Indian woman to bag the chess grandmaster title (29).

Eighth Summit of Non Aligned Movement begins in Harare, Zimbabwe. Dr. Robert Mugabe takes over the Chairmanship from Prime Minister, Rajiv Gandhi; Seventyseven die in mid-air plane collission in Los Angeles (Sept. 1). Mother Teresa announces decision to open charity houses in Cuba, South Africa and China (4). Cyprus named venue of NAM Foreign Ministers conference in 1988. Chilean President Augusto Pinochet survives a bid on his life; Archbishop Desmond Tutu enthroned as leader of the 2-million-strong Anglican Church in Southern Africa (8). Amnesty International accuses the Sri Lankan Government of atrocities against the minority Tamil population (9). Moscow agrees to free US newsman, Nicholas Daniloff of the 'US News and World Report', who was arrested on espionage charges; Indonesia devalues Rupiah by 31.2% against the dollar and other major currencies (12). On the eve of the 10th Asiad, bomb explosion kills 5 at Kimpo International airport in Seoul; China retains the World Women's Volleyball championship beating Cuba (14). France clamps visa curbs to counter terrorism—all foreigners except the nationals of the EEC countries and Switzerland will [illegible] visas to enter the country (16). Japan nounces new measures against South Africa [illegible]). 10th Asiad opens in Seoul; GATT confer- at Punta Del Este, Uruguay conceds India's demand that negotiation in services like banking and travel be conducted outside the GATT forum; The 35-nation European Security Conference in Stockholm approves document that will allow the East and West to monitor continuously and inspect all troop movements from the Atlantic to the Urals in the Soviet Union; Ravi Shastri completes 2000 test runs (20). First Test between India and Australia ends up in a 'tie' at Madras. Score: Australia 574-7 declared and 170-5 declared; India 397 and 347 (22). Nigerian currency Naira devalued by 66% (26). Vengsarkar completes 5000 runs in test cricket when he hit 15 in the 2nd innings against Australia at New Delhi (30).

The US Senate overrides President Reagan's veto on sanctions against South Africa (Oct. 3). Garry Kasparov retains his World Chess Championship defeating Anatoly Karpov (12-11) (5). A virgin peak in the Soviet Central Caucasus named after Samantha Smith, the little American 'envoy of peace' (6). India wins the Charminar challenge cup one day cricket series against Australia (3-2) (7). Argentine President Raul Alfonsin was awarded the Council of Europe's human rights prize (10). Reagan and Gorbachev meet in Reykjavik, capital of Iceland for their second summit (11). 1800 die in El Salvador quake; Mother Teresa narrowly escapes from a plane crash in Tanzania; Javier Perez de Cuellar re-elected Secretary General of the United Nations for 5 more years with effect from January 1987 (12). SDI blocks superpower deal at Reykjavik summit of Reagan and Gorbachev; Mr. Stanley Cohen of the US and Italo-American, Ms Rita Levi-Montalcini, Sweden's Karolinska Institute get 1986 Nobel Prize for medicine (13). Survivor of Nazi camp, Mr. Elie Wiesel wins Nobel Peace Prize; Bangladesh goes to polls to elect a Civilian President (14). The Soviet Union starts pulling out its troops from Afghanistan; Three share Nobel Prize for Physics, Chemistry Prize also for three; Taiwan's ruling Kuomintong (KMT) announces the end of 37 years of martial law to pave the way for setting up new political parties. Martina registers her 1000th win in international tennis when she defeated Natalie Tanzlat of France (15); Lt. Gen. H.M. Ershad, 56, voted 10th President of Bangladesh but the third to be elected directly (16). Sunil Gavaskar hits his 33rd test century (103) at Bombay in the 3rd test against Australia (17); Australia beats England (2-1) and claims the 6th World Cup Hockey at London; India finishes 12th and last. The Belgian Hernio Nelisten and Firmin Thierie win the 7th Himalayan Car Rally (27); US President Ronald Reagan signs executive order implementing economic sanction ordered by the US Congress against S. Africa (28); Ahmed Zaki Yamani relieved from the post of Saudi Oil Minister. He is replaced by Planning Minister, Hisham Nazes (30); Indo-Chinese revolutionary Prince Souphanouvong steps down as President of Laos (31).

Ramesh Krishnan becomes the first Asian to win the Hongkong Seiko Super Tennis Tourney (Nov2); The US appoint Edward Perkins as the first black Ambassador to South Africa; Mr. Joaquin Chissano, Foreign Minister,

elected President of Mozambique, to succeed Samora Machel (3); Democrats wrest control of the US Senate from the Republicans in the biennial elections (4). 'Washington Post' reports that Pakistan detonated a nuclear-device, between September 18 and 21, the second of a series conducted by them in 1986 (5); President Ershad withdraws Bangladesh's 4-5 year of military rule (10). The West German Parliament adopts measures to limit the number of foreigners to be given assylum (13); USA wins the team title in the World Senior Powerlifting Championship at Prague. India's P.J. Joseph wins a silver in the 56 kg category (15); SAARC Summit at Bangalore decides to set up permanent secretariat at Kathmandu, India elected new Chairman (17). The Soviet Parliament adopts legislation that allows private enterprise on a small scale (19); In Philippines, President Corazon Aquino removes her potent rival Juan Ponie Enrile from the post of Defence Minister (23); Martina wins the $ one-million Women's Tennis at Madison Square Garden (24); President Reagan declares that a profit of about $10 million to $30 million made from a shipment of arms to Iran had been illegally siphoned off to finance the guerilla war of the 'Contras' in Nicaragua; Reagan fires National Security Advisor John Poindexter; France confirms it has perfected a neutron bomb that kills humans but does not destroy property; Police foils assasination attempt on Pope John Paul II in Brisbane, Australia (25); King Fahd of Saudi Arabia and Amir of Bahrain, Sheikh Isa Bin Sulman al Khalifa jointly open the 20 km long Saudi—Bahrain causeway (26); Philippines President, Corazon Aquino wins another round when her government signed a cease-fire agreement with the communist insurgents towards ending a 17-year old guerilla war (27). A B-52 bomber carrying 12 nuclear-tipped cruise missiles enters service with the US Airforce, raising the total of cruise-carrying bombers and multiple-warhead missiles above the ceiling of 1320 set out in the 1979 SALT-2 agreement (28).

UAE decides to levy fee on priave schools (Dece 2). U S Congress decides to conduct Watergate style probe into the Iran arms deal (5). The Liberation Tigers of Tamil Eelam in Sri Lanka announces 'elimination' of 20 members of the rival Eelam People's Revolutionary Liberation Front. Two Kurds held for the murder of Swedish Prime Minister Olof Palme (14). UK deports 'Jammu Kashmir Liberation Front' Chairman Amanullah Khan. An experimental air-craft, Voyager, takes off from Edwards Air Force Base, California on an unprecedented attempt to circle the earth without stopping or refuelling. The opposition National Alliance for Reconstruction wins a landslide Election victory in Trinad and Tobago ending a 30-year rule by People's National Movement. Karachi rocked by clashes between rival Muslim communities, more than 150 killed (15). Top leaders quit in Vietnam to pave way for youngsters (17).

INDEPENDENT NATIONS

USSR with 22.4 million sq km is the biggest independent state in the world while China with 1,051,551,000 people becomes the biggest state in respect of population. Vatican City has the distinction of being the smallest state in respect of area (44 hectares) and population (about 1000 people).

The brief description of states given below deal primarily with location, area, population, currency, history and economy. Population figures have been updated with reference to the latest world population chart of UNFPA. Currency rates, though of 1987, are subject to heavy fluctuations as evident from the fledgling economies of some newly independent countries.

Biggest States

In Area

State	Area (sq km)	Location
USSR	22,402,200	Europe Asia
Canada	9,976,139	N America
China	9,596,961	Asia
U.S.A.	9,363,130	N America
Brazil	8,511,965	S America
Australia	7,682,300	S Pacific
India	3,280,483	Asia
Argentina	2,776,889	S America
Sudan	2,505,813	Africa
Algeria	2,381,741	N Africa

In Population

China	1,051,551,000	Asia
India	746,742,000	Asia
USSR	275,761,000	Europe-Asia
USA	235,681,000	N. America
Indonesia	162,167,000	Asia
Brazil	132,648,000	S. America
Japan	119,492,000	Asia
Bangladesh	98,464,000	Asia
Pakistan	98,971,000	Asia
Nigeria	92,037,000	Africa

Smallest States

In Area

State	Area (sq km)	Location
Vatican City	0.44	Europe
Monaco	1.95	Europe
Nauru	22.00	S. Pacific
Tuvalu	26.00	S. Pacific
San Marino	61.00	Europe
Liechtenstein	157.00	Europe
Maldives	298.00	Indian Ocean
Malta	316.00	Mediterranean
Grenada	344.00	Caribbean
St. Vincent	220 00	Caribbean

In Population

Vatican City	1,000	Europe
Tuvalu	7,349	S. Pacific
Nauru	8,421	S. Pacific
Marino	21,622	Europe
Liechtestein	26,512	Europe
Monaco	27,063	Europe
Andorra	41,627	Europe
Kiribati	60,302	S. Pacific
Seychells	64,718	Indian Ocean
Dominica	6,300,000	Caribbean

AFGHANISTAN

Cap: Kabul; **Area:** 647,497 sq km; **Pop.** 14,292,000. **Lang:** Pakhto (Pushtu), Dari, Persian; **Rel:** Islam; **Currency:** Afghani, AFS. 50=US $1.

Afghanistan, a land-locked republic in Central Asia. Known originally as Ariana, then as Khorasan (the land of the Rising Sun), Afghanistan was formed as a separate state by Ahmed Shah Durrani in A.D. 1747. Pro-Soviet Govt. since Dec. 1979 when Soviet troops occupied the country.

Agriculture remains the mainstay of the economy. Sheep-rearing is another ma occupation and the chief exports are livesto fruits, wool and skins. The chief minerals a coal, salt, natural gas, petroleum, iron a copper.

President, Revolutionary Council: Dr. jibullah.

Mission in India: Embassy of Afghanist Shanti Path, Chanakyapuri, New Del 110 021. Tel: 603331.

ALBANIA

Cap: Tirana; **Area:** 27,748 sq km; **Po** 29,85,000; **Lang:** Albanian; **Rel:** officially ab lished; **Currency:** Lek; $1=9.33 leks.

Albania lies on the west coast of the Balk peninsula in south-east Europe. Albania w first established as an independent state 1912. Communist Government.

More than 40 per cent of the land farm-land producing wheat, maize, sugar be cotton and tobacco and supporting a he livestock population mainly sheep and goa The important minerals are coal, oil, chron copper and nickel. Industries include cot textiles, woollen fabrics, leather goods, petr cement, sugar, beer and cigarettes.

Head of state: Ramiz Alia, **P.M:** A Carcani.

ALGERIA

Cap: Algiers: **Area:** 2,381,741 sq km **Po** 21272000. **Lang:** Arabic and French; **R** Islam; **Currency:** Dinar; $1=5.27 DA.

Algeria is an independent republic in No Africa and extends for 640 miles along t shores of the Mediterranean. The plains lyi along the coast are very fertile. The At Mountains reaching to altitudes of some 70 ft. split the country into two. Algeria becar an independent republic on July 3, 1962.

Agricultural products include wheat, barl potatoes, artichokes, flax and tobacco. Fru like dates, pomegranates and figs grow abundance. Wine and olive oil are also p duced. Cattle raising, however, is the m important occupation. Important minerals a iron, zinc, mercury, copper, antimony, ph phates and petroleum.

President: Chadli Benjedid, **P.M:** Abd Hamid Brahimi.

Mission in India: Embassy of the Democ tic and Popular Republic of Algeria, 15, Ana

Lok, New Delhi- 110 049. Tel: 655216.

ANDORRA

Cap: Andorre-la-Vieille; **Area:** 464 sq km; **Pop:** 41627. **Lang:** Catalan; **Rel:** Christian; **Currency:** French franc, Peseta (Spain).

The principality of Andorra, founded in 1278, lies in the valleys of Eastern Pyrenees, between France and Spain, about half-way between Barcelona and Toulouse.

Andorra has no proper constitution and its international status is dubious. It is nominally subject to the suzerainty of France and the Bishop of Urgel in Spain.

The government is carried on by a council of 28 elected members.

Andorra is an agricultural country, cereals, potatoes and tobacco being the principal crops. Iron, lead, alum, stone and timber are the principal products, though tourism is the main source of income.

Head of Govt: Josef Pintat Solaus. **First Syndic:** Francesc Cerqueda- Pascuet.

ANGOLA

Cap: Luanda; **Area:** 1,246,699 sq km; **Pop:** 8,540,000; **Lang:** Portuguese, Bantu; **Rel:** Tribal and Christian; **Currency:** Kwanza; $1=29.92 Kwanza.

Angola, formerly Portuguese West Africa, became an independent state in 1975.

The important food crops are millet, maize and cassava. The main cash crops are coffee, cotton, oil palm and sisal. Industries comprise textiles, brewing, cement, oil refining and sugar. Angola is famous for its gemstones and produces about one-tenth of the total world supply. The main exports are crude petroleum, coffee, diamonds, iron ore, fish, sisal and timber.

President: Jose Eduardo dos Santos.

ANTIGUA & BARBUDA

Cap: St. John's; **Area:** 280 sq km; **Pop:** 79,000; **Lang:** English and Patois; **Rel:** Christian; **Currency:** Eastern Caribbean $ US $1=EC$2.70.

Antigua, one of the islands of British West Indies, is politically linked to two islands Barbuda and Redonda. Redonda is uninhabited. Antigua and Barbuda became independent on Nov. 1,1981.

The population is of mixed European Negro origin. The economy is agricultural. Sugar and sea island cotton are the main exports. Tourism is a major source of income

Governor-General: Sir Wilfred Ebenezer Jacobs. **P.M:** Vere C. Bird.

ARGENTINA

Cap: Buenos Aires; **Area:** 2,766,889 sq km. **Pop:** 30094000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Pesos. $1=253.3 Pesos.

Argentina lies at the tip of South America

Capital Craze

Argentina will have a new capital in place of the 106-year old Buenos Aires. *It will be built in Patagonia, on the Negro river, almost 1,000 km south of the present capital.*

President Raul Alfonsin *favours the new site, in the relative wilderness of Patagonia, because 'it will shake Argentina out of its decade-long slump and trigger a new frontier, pioneering dynamics.' The opposition Peronists favour a new site in the north-west provinces.*

Argentina has huge foreign debts totalling $ 50 billion and sceptics wonder where money for the $ 3.2 billion project, spread over 4,620 sq km, about ten km east of Viedma, is to come from.

The capital Buenos Aires with its ten million people dominates the national scene, epitomising its culture, running its economy and setting the political agenda.

India's own history also provides instances like Tughlak's disastrous decision to shift the capital from Delhi *to* Daulatabad *and Akbar's equally infructuous bid to shift his capital from* Agra *to* Fatehpur Sikri. *Often, the reasons are political and administrative, as when the British moved the capital in 1911 from* Calcutta *to* New Delhi.

They may also be strategic, as when Pakistan chose to build Islamabad *rather than opt for* Karachi *or* Lahore.

Sometimes the [illegible] *major cities lead to a new* [illegible] *as in the case of Australia* [illegible] Ottawa.

extending for some 2300 miles from Bolivia to Cape Horn. Its maximum width is 930 miles. The highest peak in the Americas, *Aconcagua*, is in Argentina. Argentina became an independent republic in 1810.

Argentina abounds in deposits of coal, lead, copper, zinc, gold, silver and sulphur. Petroleum is also found. Meat packing is the chief industry, with flour milling coming second. Agriculture and animal husbandry form important segments of the economy.

President: Dr. Raul Alfonsin.

Mission in India: Embassy of the Argentine Republic, B-8/9, Vasant Vihar, Paschimi Marg, New Delhi- 110 057. Tel: 671345.

AUSTRALIA

Cap: Canberra. **Area:** 7,682,300 sq km; **Pop:** 15,751,500; **Lang:** English; **Rel:** Christian; **Currency:** Dollar. US$1=1.39 Dollars.

Australia is the world's largest island and a continent washed on its western shoreline by the Indian Ocean and on its east coast by the Coral and Tasman Seas of the South Pacific Ocean.

It has a unique assortment of flora and fauna not found elsewhere in the world. The number of aborigines living in Australia is about 1,60,000. About half the aborigines live in cities or towns. They participate at all levels of life of the Australian community. Many aborigines still live in the remote areas of Australia and prefer traditional tribal oriented lifestyles

ne boomerang was invented by the aborigines who have lived in Australia for more than 40,000 years

Australia is a multicultural society Four out of 10 Australians are first or second generation migrants. One in five of the population is overseas born. In the past most migrants came from Europe, but now, under Australia's non-discriminatory immigration policy, they come from well over 100 countries One of the most sparsely populated nations, it is also one of the most highly urbanised with 85 per cent of the population living in cities Vast areas of the continent receive only very small amounts of rainfall limiting development mainly to the coastal fringes.

Australia is a Federation with power divided broadly between the national Government and six State governments. The powers of the Australian Parliament are laid down in a written constitution which came into force on January 1, 1901, when the colonies federated to form the Commonwealth of Australia. Th states are New South Wales, Victoria, Queens land, South Australia, Western Australia an Tasmania.

State Capitals: Sydney, Melbourne, Bris bane, Adelaide, Perth and Hobart.

In March 1986, Queen Elizabeth II signe the Proclamation of the Australia Act 198 which severed Australia's last remaining con stitutional links with Britain. Queen Elizabet is formally Queen of Australia.

During the 20th century Australia has de veloped into a modern industrial nation buil upon the solid foundation of an efficient an productive agricultural system and large re serves of minerals. Australia is now an impor tant producer and exporter of a wide range o agricultural products especially wool, whea and meat and its mines provide minerals an metals of many types for use by local an overseas industries, including coal, iron-ore bauxite, gold, silver, lead, zinc, copper nicke oil and natural gas.

Australia celebrates its Bicentenary in 198 to mark the 200th anniversary of Europea settlement. Australia Day is celebrated o January 26.

Head of State: Governor-General, Sir Ninia Stephen. **PM:** Mr. R. J. L. (Bob) Hawke.

Mission in India: High Commission o Australia, 1/50-G, Shantipath, Chanakyapuri New Delhi-110 021. Tel: 601336.

AUSTRIA

Cap: Vienna; **Area:** 83,853 sq km **Pop** 7,489,000; **Lang:** German; **Rel:** Christian; **Cur rency:** $1 = 16.56 Schilling.

A republic in Central Europe since 191 Austria regained full sovereignty after Worl War II in 1955. Over 65 per cent of the countr is mountainous

Economy depends mainly on mining an manufacturing, trade and services. Austria ha iron ore and oil deposits, lignite, magnesite lead and some copper. Austrian capital house UN organisations like UNIDO and IAEA an international bodies like OPEC. Tourism i highly developed.

President: Dr. Kurt Waldheim. **Chancel lor:** Dr. Franz Vranitzky.

Mission in India. Embassy of Austria, EP-13 Chandragupt Marg, Chanakyapuri, New Delhi

110 021 Tel: 601112.

Consulate: 96/1, Sarat Bose Road, Calcutta-26 Tel: 47-2795

Kothari Building, Nungambakkam High Road, Madras-600 034

THE BAHAMAS

Cap: Nassau, **Area:** 13,939 sq km; **Pop:** 2,28,000, **Lang:** English, **Rel:** Christian, **Currency:** Bahamian $, $1 05 = £1 Sterling

The Commonwealth of the Bahamas is an archipelago lying off the south-east coast of Florida The Bahamas consists of more than 700 islands and 2000 cays and rocks Only about 30 of the islands are inhabited. The largest island is *Andros* but *New Providence* is the most populous The capital *Nassau* is situated on this island. Eighty-five per cent of the population is *Negro*, the rest are *Europeans*.

The Bahamas became internally self-governing in 1964 and fully independent in 1973

Education is free and compulsory between the ages of 5 and 14

Tourism is the main industry. Fishing constitutes the main occupation Vegetables and fruits are also grown.

Governor-General: Sir Gerald Cash **P.M:** Lynden O. Pindling

BAHRAIN

Cap: Manama; **Area:** 669 sq km, **Pop:** 384,221; **Lang:** Arabic and English, **Rel:** Islam, **Currency:** Dinar, 0.37600 Dinar = US $ 1

Bahrain, which became an independent state on Aug 15, 1971, is an Arab state comprising 33 small islands in the Arabian Gulf Bahrain is the biggest of the islands and has lent its name to the whole archipelago It is an independent monarchy

The traditional occupations of cattle breeding, agriculture and fishing are still practised but many modern industries have also come up Oil accounts for the lion's share of the state revenues

The people enjoy a very high standard of life Education is free upto the secondary level and liberally subsidised with scholarships at higher levels.

Amir: Shaikh Isa bin Sulman Al Khalifa **P.M.:** Shaikh Khalifa bin Sulman Al Khalifa

BANGLADESH

Cap: Dhaka; **Area:** 143,998 sq km; **Pop:** 98,100,000; **Lang:** Bengali and English; **Rel.** Islam, **Currency:** Taka. $1 = 30.30 TK

Bangladesh is bounded on three sides by India. Burma lies to the south-east and constitutes the only non-Indian boundary. Bangladesh became an independent state in 1971

The economy is primarily agricultural Rice is the most important food crop Bangladesh is the biggest producer of jute in the world, commanding 80 per cent of the world's total production Industrially, Bangladesh is backward Textiles, sugar, jute, tea, paper, fertilizer, natural gas, power generation, steel, garments, tobacco, rubber, chemicals and machineries comprise the bulk of industrial production

President: Lt Gen Hossan Mohammad Ershad **P.M.:** Mizanur Rahman Chowdhury.

Mission in India 1 High Commission of Bangladesh, 56-Ring Road, Lajpat Nagar III, New Delhi-110 024 Tel 615668 2 Deputy High Commission of Bangladesh, 9, Circus Avenue, Park Circus, Calcutta-7 Tel 44 5208 3 Bangladesh Visa Office, Agartala, Tripura

BARBADOS

Cap: Bridgetown, **Area:** 430 sq km, **Pop:** 262,000, **Lang:** English, **Rel:** Christian, **Currency:** Barbados dollar (BD) US $1 = BD $2.01

The island of Barbados is the most easterly of the Caribbean islands, lying about 250 miles north east of the mainland of South America It is included in the Windward Isles Barbados became fully self-governing within the Commonwealth on Nov 30, 1966

Agriculture and tourism dominate the economy of Barbados Sugar, molasses and rum account for 90 per cent of exports

Head of State: Queen Elizabeth II **Governor-General:** Sir Hugh Springer **P.M.:** Erskine Sandiford

BELGIUM

Cap: Brussels, **Area:** 30,521 sq km, **Pop:** 9,856,000, **Lang:** Dutch and French, **Rel:** Christian **Currency:** Belgian Franc, $1 = [illegible] BF

Belgium, name [illegible] the Belgae [illegible] ancient Gaul [illegible]

extending for some 2300 miles from Bolivia to Cape Horn. Its maximum width is 930 miles. The highest peak in the Americas, *Aconcagua*, is in Argentina. Argentina became an independent republic in 1810.

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BELGIUM

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Belgium, named after the Belgae [illegible] ancient Gaul who [illegible]

6th century B.C., has had a turbulent history. It became an independent monarchy in 1830. During both the world wars it was occupied by Germany but freed itself by the end of those wars.

Belgium is the most densely populated country in Europe. Although it is essentially a manufacturing country, agriculture and forestry are also very important. The main crops are oats, rye, wheat, potatoes, barley and sugar beets. Coal is the country's only important mineral. Principal industries are steel and metal products, textiles, glass, fertilizer, sugar, heavy chemicals etc Antwerp is the world's 4th largest port and also the world's biggest diamond-trading centre.

Head of State: King Baudouin. **P.M.:** Dr. Wilfried Martens

Mission in India Embassy of Belgium, 50-N, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608295

Consulate: 5/1A, Hungerford St , Calcutta-17. Tel: 44-3886.

BELIZE

Cap: Belmopan; **Area:** 22,965 sq km **Pop:** 157,700; **Lang:** English; **Rel:** Christian; **Currency:** Dollar. US $ 1 = B$2.

Belize, formerly known as British Honduras, is a Central American republic with the Caribbean to the east, Mexico to the north-west and Guatemala to the south-west. Originally a British colony, it was granted autonomy in 1964 and became independent in 1981. The name Belize was adopted in 1973 The original capital Belize City was laid waste by a hurricane in 1961 The capital was shifted to Belmopan, an inland town, in 1970

More than half the population is made up of the so-called Creoles or English-speaking Negroes, found mostly in the coastal regions. The indigenous (Red) Indian population consists of Mayans and Kekchis who live mostly in the reservations.

Forest products especially timber form a major export item Sugar and citrus fruits form the major products Wild life includes the curious creature mantee—an amphibian mammal—and several varieties of reptiles

Gov. Gen.: Dame Elmira Minita Gordon. **P.M.:** Manuel Amadeo Esqivel

BENIN

Cap: Porto Novo; **Area:** 112,622 sq km; **Pop** 3,890,000; **Lang:** French and Tribal dialects **Rel:** Tribal and Islam; **Currency:** Franc CFA French Franc = 50 Franc CFA

The People's Republic of Benin (formerl Dahomey) is located north of the Gulf o Guinea in West Africa. It is bounded by Togo Burkina Faso, Niger and Nigeria.

Formerly, one of the provinces of Frenc West Africa, Benin became an independen state on Aug. 1, 1960. The country has bee plagued by coups and counter-coups.

Benin's principal products are palm oi kernels, peanuts, cotton, coffee and tobacco

President: Brig-Gen. Ahmed Kereko **Pres. of National Exe. Council:** Brig.-Ge Ahmed Mathieu Kerekou.

BERMUDA

Cap: Hamilton; **Area:** 53.3 sq km; **Pop:** 54,89 **Lang:** English; **Rel:** Christian; **Currency** Bermuda dollar. US $ 1 = 1 B$.

Bermuda is a group of some 300 cora islands in the Western North-Atlantic. They ar said to have been discovered by a Spaniar Juan de Bermudez in 1650. In 1968 it wa given the status of a British Associate state wit full internal autonomy.

Negroes make up two-thirds of the popula tion. Persons of British or Portuguese stoc form the rest.

The chief crops are vegetables, flower (Easter lilies specially), bananas and citru fruits. Tourism is the main source of revenue

Gov. Viscount Dunrossil. **Premier:** John W D. Swan.

BHUTAN

Cap: Thimphu; **Area:** 47,000 sq km; **Pop** 1,388,000; **Lang:** Dzongkha and Nepali; **Rel** Buddhism and Hinduism; **Currency:** Ngul trum. Indian Rupee also is legal tender.

Bhutan is a mountain state in the Himalayas with China on the north and India on th south. It is an absolute monarchy.

Agriculture is the chief occupation. Th principal products are rice, corn, and mille and forest produce like wax, lac, musk, etc Timber and fruits are exported.

King: Jigme Singye Wangchuck.

Mission in India: Royal Bhutanese Embassy, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 609217.

BOLIVIA

Cap: La Paz; **Area:** 1,098,581 sq km; **Pop:** 6,200,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peso boliviano ($b). US $1 = $b 45,000.

Bolivia, a South American state, lies astride the Andes. Lake Titicaca on the Peru-Bolivian border is the highest lake in the world (12,506 ft.).

Originally part of the ancient Inca Empire, Bolivia became independent in 1825. Bolivia has been named after Simon Bolivar, the famous South American fighter for freedom. Bolivia, like most Latin American states, has had a number of coups and counter-coups.

Agriculture, the mainstay of the country, engages 70 per cent of the people. Tin mining is the most important industry. Bolivia produces about 30,000 tons of tin, nearly 15 per cent of the world's total output. Antimony and tungsten are the next most important minerals.

President: Victor Paz Estenssoro.

Mission in India: Consulate of Bolivia, 20, Loudon St., Calcutta-700 016. Tel: 443283.

BOTSWANA

Cap: Gaborone; **Area:** 600,327 sq km, **Pop:** 1,012,000; **Lang:** English and Tswana; **Rel:** Tribal and Christian; **Currency:** Pula. US $1 = P 1.867.

The Republic of Botswana (formerly known as Bechuanaland) is located in Southern Africa, and is bounded by South Africa in the south and east, Namibia in the west and Zimbabwe in the north east. Botswana became independent in Sept. 1966 and assumed its present name.

Cattle industry is the most important economic activity. Beef is the main export. Diamonds, manganese, asbestos, coal, copper and nickel are leading mineral resources.

President: Dr. Quett Ketumile Joni Masire

BRAZIL

Cap: Brasilia; **Area:** 8,511,965 sq km; **Pop:** 132,618 000, **Lang:** Portuguese; **Rel:** Christian; **Currency:** Cruzados (CZ $) 1 US $ = 13.77 CZ $.

Brazil, the largest South American state both in area and population, lies more or less in the centre of South America. The bulk of Brazil lies in the tropics. It is a land of dense forests and mighty rivers. The Amazon and the Sao Francisco cover the north of the country.

More than half of Brazil's population now live in the cities, which are responsible for generating about 35 per cent of the GNP. Among the most important cities are: *Sao Paulo, Rio de Janeiro, Belo Horizonte, Recife, Salvador and Brasilia.* Brasilia, a showpiece of modern architecture and town planning, was declared the capital on April 21, 1960.

Brazil's main industries are concentrated at Sao Paulo—shipbuilding, motor cars, textiles, foodstuffs, metals and chemicals. Brazil is the world's largest producer of coffee, bananas, manioc and sugar cane and the second biggest producer of oranges, maize and cocoa.

The major exports of Brazil are soya beans, sugar, coffee, iron ore, cocoa beans, maize, sisal and tobacco.

Brazil possesses vast deposits of mineral wealth—iron, phosphates, uranium, manganese, copper, coal, platinum and gold. Oil is a state monopoly. The wax which is used for phonograph records and insulation is a monopoly product of the state.

President: Jose Sarney

Mission in India: Embassy of Brazil, N-90, Panchshila Park, New Delhi-110 017. Tel: 6436791

BRUNEI

Cap: Bander Seri Begawan, **Area:** 5765 sq km; **Pop:** 214,440, **Lang:** Malay, Chinese; **Rel:** Islam; **Currency:** Brunei Dollar with the par value of 0.290299 gram of gold.

The Sultanate of Brunei on the northern side of the island of Borneo lies between two Malaysian territories, Sabah and Sarawak. Brunei Malays, mostly Muslim, form more than half of the population. The Sultanate, once a powerful and independent kingdom, was annexed by Britain who in 1971 granted it full internal autonomy.

Oil and natural gas are Brunei's most valuable resources. Much of [illegible] comes from the offshore [illegible]

the chief food crop. Other crops are coconuts, sago and rubber. Rubber is an export item.

Sultan: Hassanal Bolkiah.

BULGARIA

Cap: Sofia; **Area:** 110,912 sq km; **Pop:** 8,942,000; **Lang:** Bulgarian; **Rel:** Christian; **Currency:** Lev. US $ 1 = 0.999 leva.

Bulgaria in south-east Europe was founded in 681 and became a socialist republic on 9 September, 1944.

The principal crops are wheat, rye, barley, maize, sugarbeet, oats, corn, potatoes and tobacco. Coal, iron ore, copper, lead and zinc are the main mineral resources.

President of the State Council and Secretary-General of the Communist Party Todor Zhivkov. Chairman, Council of Ministers: George Atanassov.

Mission in India: Embassy of the People's Republic of Bulgaria, E.P. 16/7, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 607411.

BURMA

Cap: Rangoon; **Area:** 676,552 sq km; **Pop:** 38,513,000; **Lang:** Burmese and Tribal; **Rel:** Buddhism; **Currency:** Kyat. US $1 = K. 7.31.

Originally a part of British India, Burma became a separate unit of the British Commonwealth in April 1937. It became an independent country on January 4, 1948.

Burma is known as the "rice bowl of the Far [illegible]". The chief minerals are petroleum, lead, tin, zinc, tungsten, copper, antimony, silver and gems. The rubies, sapphires and jade found in Burma are especially famous. Teakwood is exported on a large scale.

President: San Yu **P.M.:** U Maung Maung Kha.

Mission in India: Embassy of Burma, Plot No 3, Block No. 50F, Nyaya Marg, Chanakyapuri, New Delhi-110 021 Tel: 600251

BURKINA FASO

Cap: Ouagadougou; **Area:** 274,200 sq km; **Pop:** 6,768,000; **Lang:** French and native languages; **Rel:** Tribal and Islam, **Currency:** Franc CFA. US $ 1 = 512 Franc CFA

The Republic of Burkina Faso is a landlocked state in West Africa surrounded by Mali, Niger, Benin, Togo, Ghana and Ivory Coast.

Demonetisation in Burma

Burma invalidated its top value banknotes in September 1987 in a surprise move which official sources said was aimed at black-marketeers and counterfeit notes being used by anti-Government rebels to buy supplies.

A snap Government announcement said the 75-kyat note would no longer be legal tender. The Government said it was also demonetising the 35 and 25 kyat notes, which have already been withdrawn from circulation.

The only notes still in circulation are the 10, five and one-kyat bills.

In November 1985, Burma took a similar step demonetising 100, 50 and 20 kyat notes.

The measure ignited wide-spread protests and rioting all over Burma.

Formerly a province of French West Africa called *Upper Volta* the country gained full independence in 1960. Name changed to Burkina Faso in 1984.

It is almost exclusively an agricultural country with 80 per cent of the population dependent on agriculture. Livestock raising is highly developed. Principal crops are sorghum, millet, yams, cotton, rice, peanuts and karite. Industry is limited to local handicrafts.

Head of State and Govt: Capt. Blaise Compaore

Mission in India: Consulate General, 186 Sarat Bose Road, Calcutta-700 029. Tel: 46-1164.

BURUNDI

Cap: Bujumbura; **Area:** 27,834 sq km; **Pop:** 4,503,000; **Lang:** French and Kirundi; **Rel:** Tribal and Christian; **Currency:** Burundi Franc. US $ 1 = 128.3 BF.

The Republic of Burundi is a small state in Eastern Africa.

Burundi attained independence on July 1, 1962. Prior to independence, it formed part of the Belgian-administered UN Trust Territory of Rwanda-Urundi

The population consists of *Hutu* or *Bahutu* tribesmen, *Tutsi* or *Watutsi* people and *Twa* or *Batwa pygmies*. The economy is entirely agricultural, manioc and sweet potato, being the important food crops and coffee the major cash crop.

Chairman, Military Council: Maj Pierre Buyoya.

CAMEROON

Cap: Yaounde; **Area:** 475,442 sq km, **Pop:** 9,467,000; **Lang:** French and English, **Rel:** Tribal and Christian; **Currency:** Franc CFA. French franc 1 = 50 franc CFA.

Cameroon, originally part of the German colony in West Africa, became a republic in 1960. In 1961, British Cameroon was federated with Cameroon, forming the Federal Republic of Cameroon.

Cameroon has a central government and two provincial governments—East Cameroon and West Cameroon.

Cameroon is mainly an agricultural country raising cocoa, palm oil, coffee, rubber, groundnuts, bananas, and cotton. East Cameroon is industrially developed, aluminium and chemicals being the main industries

President: Paul Biya. **P.M.:** Bello Bonda Maigari.

CANADA

Cap: Ottawa; **Area:** 9,976,139 sq km; **Pop:** 25,302,000, **Lang:** English & French, **Rel:** Christian; **Currency:** Dollar US $ 1 = Canadian $ 1.39.

Canada is the second largest country in the world. It occupies all of the northern-most part of N. America except Alaska in the west and the small French islands of St Pierre & Miquelon. Twenty-seven per cent of the population speak French and the rest English

Canada is a federation comprising 10 provinces and 2 territories The federal capital is at Ottawa It is a member of the Commonwealth By the historic 'Canada Act of 1982' Britain transferred constitutional powers to Canada

The provinces with more than a million population are Ontario (8), Quebec (6), British Columbia (2), Alberta and Manitoba (1)

Provinces	Capital	Area (sq km)
Alberta	Edmonton	644,390
British Columbia	Victoria	929,730
Manitoba	Winnipeg	548,360
New Brunswick	Fredericton	72,090
Newfoundland	St. John's	371,690
Nova Scotia	Halifax	52,840
Ontario	Toronto	891,190
Prince Edward Island	Charlottetown	5,660
Quebec	Quebec	1,356,790
Saskatchewan	Regina	570,700
Territories		
Yukon Territory	Whitehorse	478,970
Northwest Territories	Yellowknife	3,293,020

From a primarily agricultural country famous for logging, fishing and fur, Canada has transformed itself into one of the leading industrial countries of the world Automobile parts head the export list, followed by wood pulp and timber. Wheat is still a major item of export Canada's industrial structure has been built up mainly by foreign investments especially USA

Canada is today the world's largest producer of asbestos, silver, nickel, and zinc It is rich in many other minerals, iron, copper, uranium, cobalt, sulphur, lead and gold It has vast reserves of oil and natural gas Though Canada is only ninth in the world in crude oil production it is Canada's biggest dollar earning mineral

Head of State: Queen Elizabeth II **Gov. Gen.** Jeanne Sauve **P.M.:** Brian Mulroney

Mission in India High Commission of Canada, 7/8 Shantipath, Chanakyapuri, New Delhi-110021 Tel 608161

CAPE VERDE

Cap: Praia, **Area:** 4033 sq km, **Pop:** [illegible], **Lang:** Portuguese, **Rel:** Christian **Currency:** *Escudo Caboverdianos* US $ 1 = [illegible]

Cape Verde, formerly a Portuguese [illegible] lies in the Atlantic Ocean off West Africa It consists of 10 islands and 5 islets [illegible] two groups Windward and Leeward [illegible] is poor and cultivation [illegible] major item of export [illegible] groundnuts are exported [illegible] independent [illegible] 1975

When the Portuguese discovered the island, it was uninhabited. Portuguese settlers and the Negroes they brought in to work their plantations, form the basic stock of the present population.

President: Aristides Maria Pereira: **P.M:** Maj Pedro Verona Rodirigues Pires.

CEN. AFRICAN REPUBLIC

Cap: Bangui; **Area:** 622,984 sq km; **Pop:** 2,508,000, **Lang:** French and Sangho; **Rel:** Christian and Tribal; **Currency:** Franc CFA. French franc 1 = 50 franc CFA.

The Central African Republic lies in the heart of equatorial Africa. It became self-governing in 1958, and fully independent in 1960, as a member state of the French Community. In 1966 Col. Jean Bedel Bokasa, Chief of Staff of the Army, ousted President David Dacko and seized control of the government.

Bokasa was made President for life in 1972. In 1976, he set himself up an emperor, after the Napoleonic pattern. In 1979 a popular uprising drove out this two-bit Napoleon. Interestingly enough, it was Bokasa's own predecessor in office, viz. David Dacko, who overthrew the self-styled Emperor in a bloodless coup on Sept. 20, 1979.

Principal agricultural products are cotton and coffee. Cotton leads in exports. Diamonds account for half the country's export earnings. Uranium mining is becoming increasingly important.

Head of State and Govt. Gen. Andre ffingba

CHAD

Cap: Fort-Lamy; **Area:** 1,284,000 sq km; **Pop:** 4,901,000, **Lang:** French and Arabic; **Rel:** Islam and Tribal; **Currency:** Franc CFA. French f 1 = 50 CFA.

The Republic of Chad was a province of French Equatorial Africa. It became independent on August 11, 1960

The country's economy is entirely rural and based on agriculture and animal husbandry. Cotton and meat are the main exports Cattle, sheep & camels are raised.

President: Hissene Habre.

CHILE

Cap: Santiago, **Area:** 756,626 sq km; **Pop:** 11,878,000; **Lang:** Spanish; **Rel:** Christianity **Currency:** Peso. US $ 1 = 200 Pesos.

The Republic of Chile lies on the Western seaboard of South America, occupying the strip of land between Peru and Bolivia in the north to Cape Horn in the south.

Originally a Spanish colony, Chile became independent on September 18, 1810. First South American country to elect a Marxist Govt. (1970) which fell in a military coup in 1973.

Though wheat and other cereals are cultivated, Chile has to import about one-third of its food. It is the world's largest producer and the largest exporter of copper. There are important deposits of nitrate, gold, silver, lithium, molybdenum and iron ore. Oil production provides about half the oil required by the country. Exports marine products and fruits.

President: Gen. Augusto Pinochet Ugarte

Mission in India: Embassy of Chile, 1/1 Shantiniketan, New Delhi-110 021. Tel 671363.

CHINA

Cap: Beijing (Peking); **Area:** 9,561,000 sq km **Pop:** 1,051,551,000; **Lang:** Chinese (Mandarin); **Rel:** Buddhism and Taoism; **Currency:** Yuan. US $ 1 = 2.53 Yuan.

The most populous country in the world and the third largest in area, China is made up of 21 provinces, 5 autonomous regions and three municipalities—Peking, Shanghai and Tientsin.

One of the oldest countries in the world, China became a republic in 1911. The People's Republic of China was proclaimed in Peking on October 1, 1949.

On Oct. 26, 1971 China was admitted a member of the UN displacing Nationalist China (Taiwan).

China is essentially an agricultural country. The main crops are rice, other grains, tea, tobacco, sugarcane, jute, soya, groundnut and hemp. The main forest products are teak and ting oil. Among the principal industries are cotton and woollen mills, iron, leather and electrical equipments. The chief minerals are coal, manganese, iron ore, gold, copper, lead, zinc, silver, tungsten, mercury, antimony and tin. Petroleum industry is steadily growing.

China is a nuclear power well advanced in space technology. It launched its first earth satellite in April, 1970.

Party Chief: Zhao Ziyang **Premier:** Li Peng

Mission in India: Embassy of China, 50-D Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600328

COLOMBIA

Cap: Bogota; **Area:** 1,138,400 sq km; **Pop:** 28,110,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Pesos US $ 1 = Pesos.

The Republic of Colombia, situated in the north west of South America, extends up to the Isthmus of Panama. *Bogota*, the capital founded in 1538, is situated in the Andes, 8600 ft above sea level.

Colombia was once a part of the South American Spanish Empire. In 1819, Simon Bolivar defeated decisively the Spanish forces breaking the hold of Spain. Bolivar's plan to unite New Granada with Venezuela and Ecuador in the Greater Colombia Confederation was fulfilled by the Congress of Angostura (1819), lasting until 1830.

Colombia's main produce is coffee, which accounts for 61.2 per cent of the country's exports. Other products are bananas, fresh flowers, cotton fibre, sugar, rice, tobacco, maize and wheat. The country is the world's leading producer of emeralds and is a substantial producer of platinum and gold. It holds the largest coal reserves in Latin America, rich nickel deposits and natural gas fields.

Industries include textiles, beverages, food products, chemicals and non-metallic minerals.

President: Virgiloo Barco Vargas

Mission in India: Embassy of Colombia, 82-D, Gr. Fl., Malcha Marg, Chanakyapuri, New Delhi-110 021. Tel: 301277-1

THE COMOROS

Cap: Moroni; **Area:** 227 sq km; **Pop:** 443,000 **Lang:** Arabic and Comoran; **Rel:** Islam and Christian **Currency:** Franc CFA. French Fl = 50 F CFA

The Comoro Islands, formerly a French Overseas Territory, lie at the northern end of the Mozambique Channel, between Africa and Madagascar. The archipelago consists of 4 islands—*Grande-Comoroe, Anjouan, Mayotte* and *Moheli*—and a number of islets and coral reefs. The main islands are volcanic and Grande-Comoroe, the largest island, is dominated by Mount Karthala (2361 m), an active volcano. The islands are densely forested.

The population is a mixture of various strains—Arabs, Africans, Malagasys, Persians, Indians, Indonesians and Europeans. African and Arab influences are strongest. A purely European population of around 1500 completes the scene. Grande-Comoroe is the most populous island and has as capital and principal town, *Moroni*. Agriculture is the mainstay of the economy.

President: Ahmed Abdullah Abderemane, **P.M:** Ali Mroudjae.

CONGO

Cap: Brazzaville; **Area:** 342,000; sq km; **Pop:** 1,695,000; **Lang:** French and Lingala; **Rel:** Tribal and Christian; **Currency:** Franc CFA. French F 1 = 50 F CFA.

Formerly part of the French Equatorial Africa, the Republic of Congo became autonomous within the French Community in 1958 and fully independent in Aug. 1960. In 1969 a new constitution was promulgated.

Main exports are timber, diamonds, palm oil, crude petroleum, sugar and groundnuts

President: Denis Sassou N'Guesso; **P.M.:** Ange-Edouard Poungui.

COSTA RICA

Cap: San Jose; **Area:** 51,100 sq km; **Pop:** 2,534,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Colone (C) US$ 1 = C 48.20.

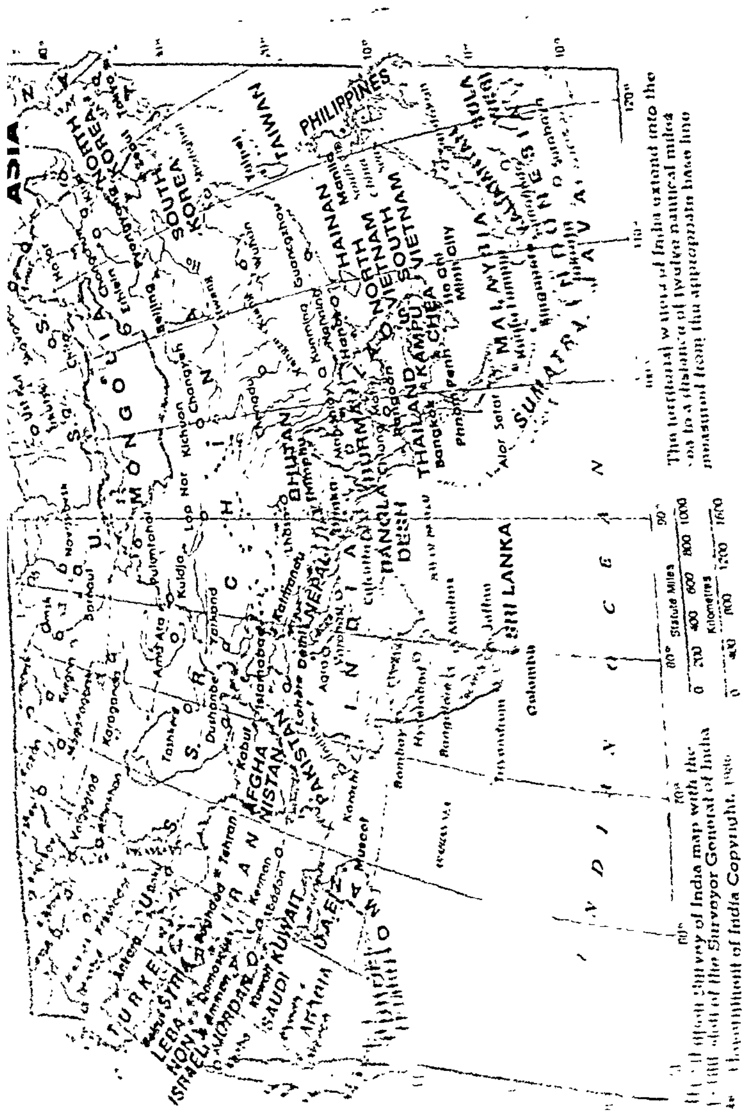
The Republic of Costa Rica is a Central American state. It lies between Nicaragua and Panama.

For nearly three centuries Costa Rica formed part of the Spanish American dominion. In 1821 it became independent.

The country is mainly agricultural. Coffee is the most important product, accounting for about half the exports. Bananas, cocoa, cattle and recently sugar are the other items of export.

President: Oscar Arias

COUNTRIES AND CONTINENTS



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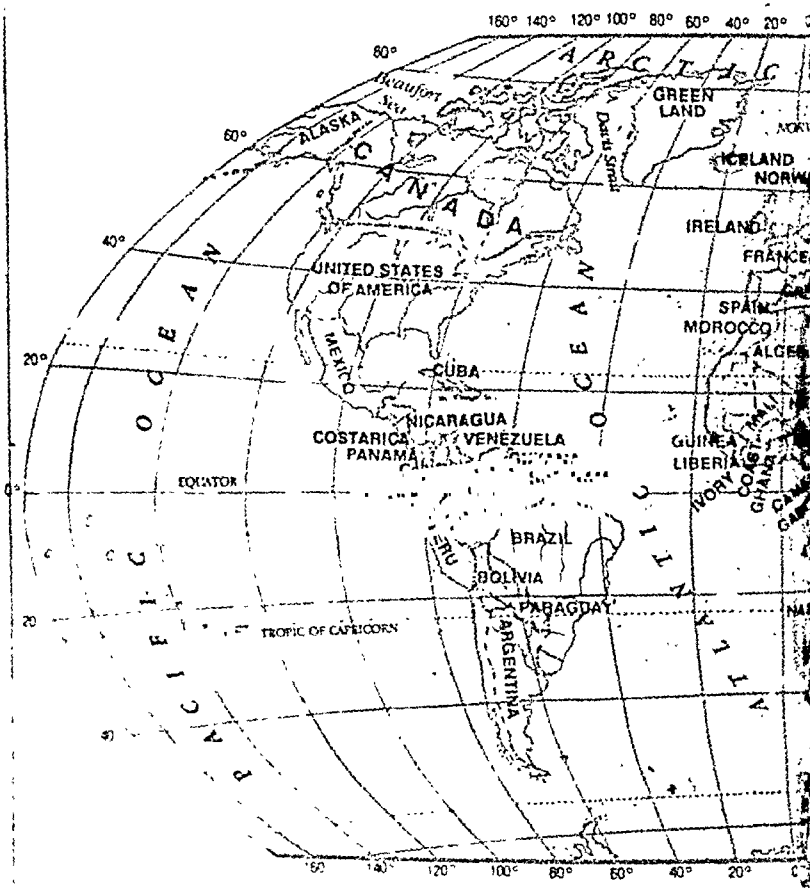

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Moscow
Smolensk
Kaunas
Vilnius
UNITED KINGDOM OF GREAT BRITAIN
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EIRE
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NETHERLANDS
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Berlin
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Gdansk
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POLAND
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FRANCE
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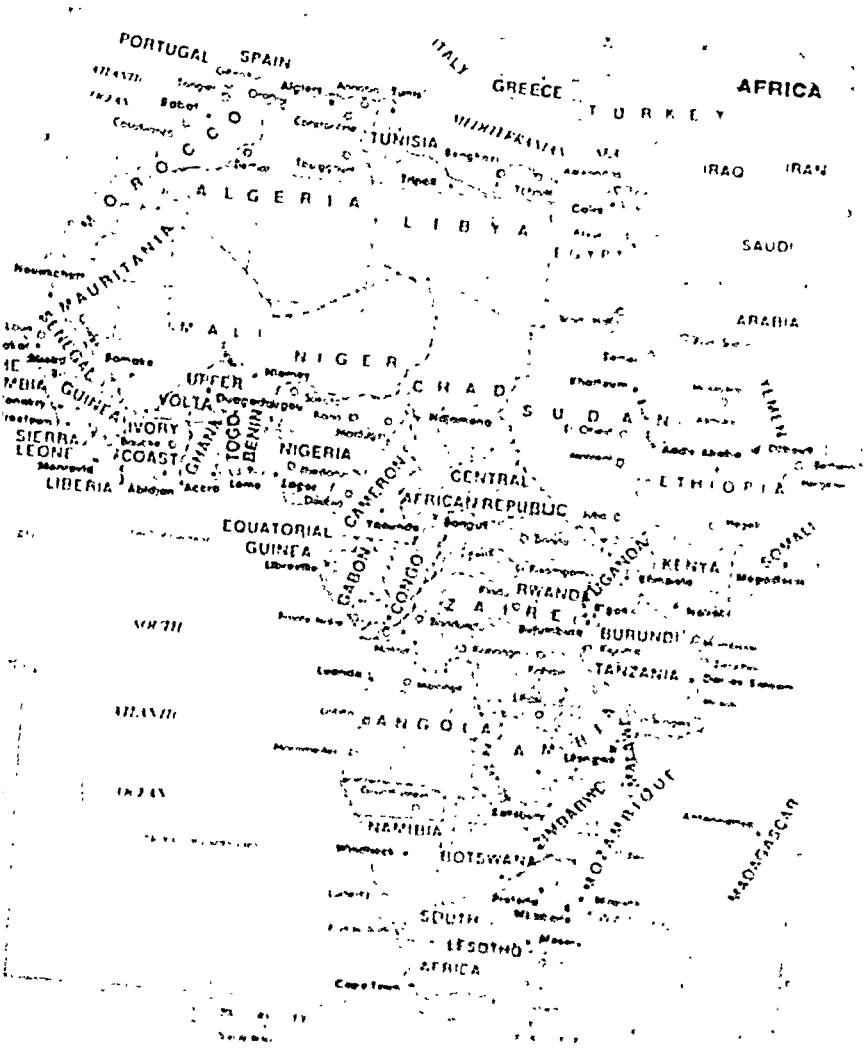
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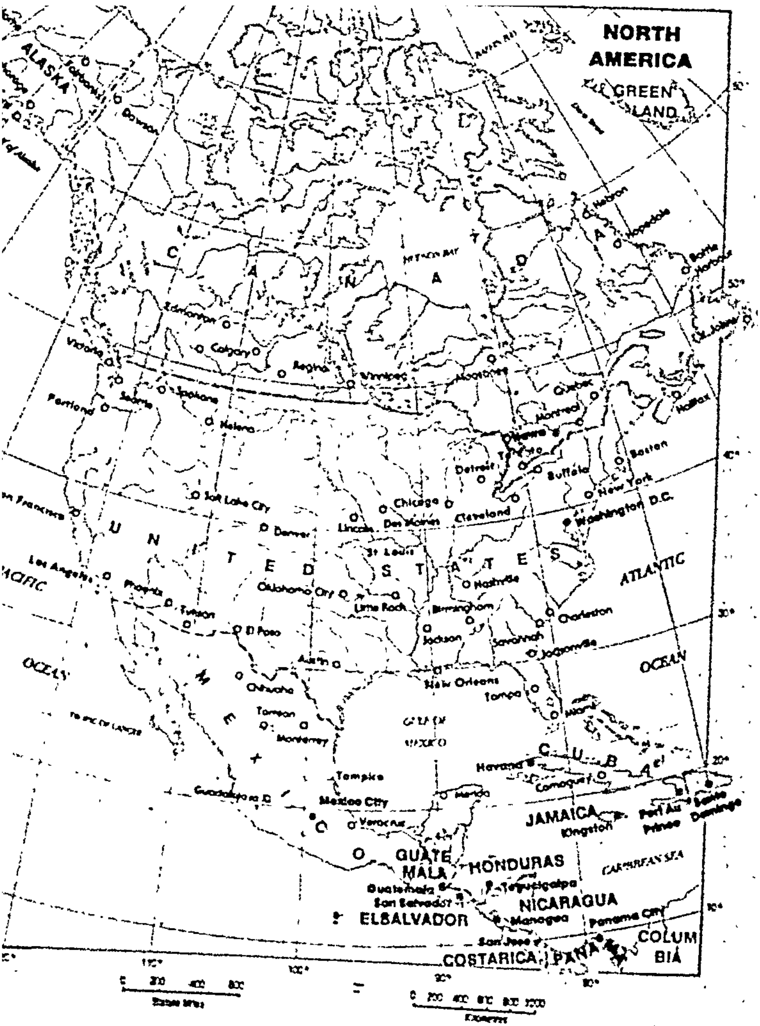
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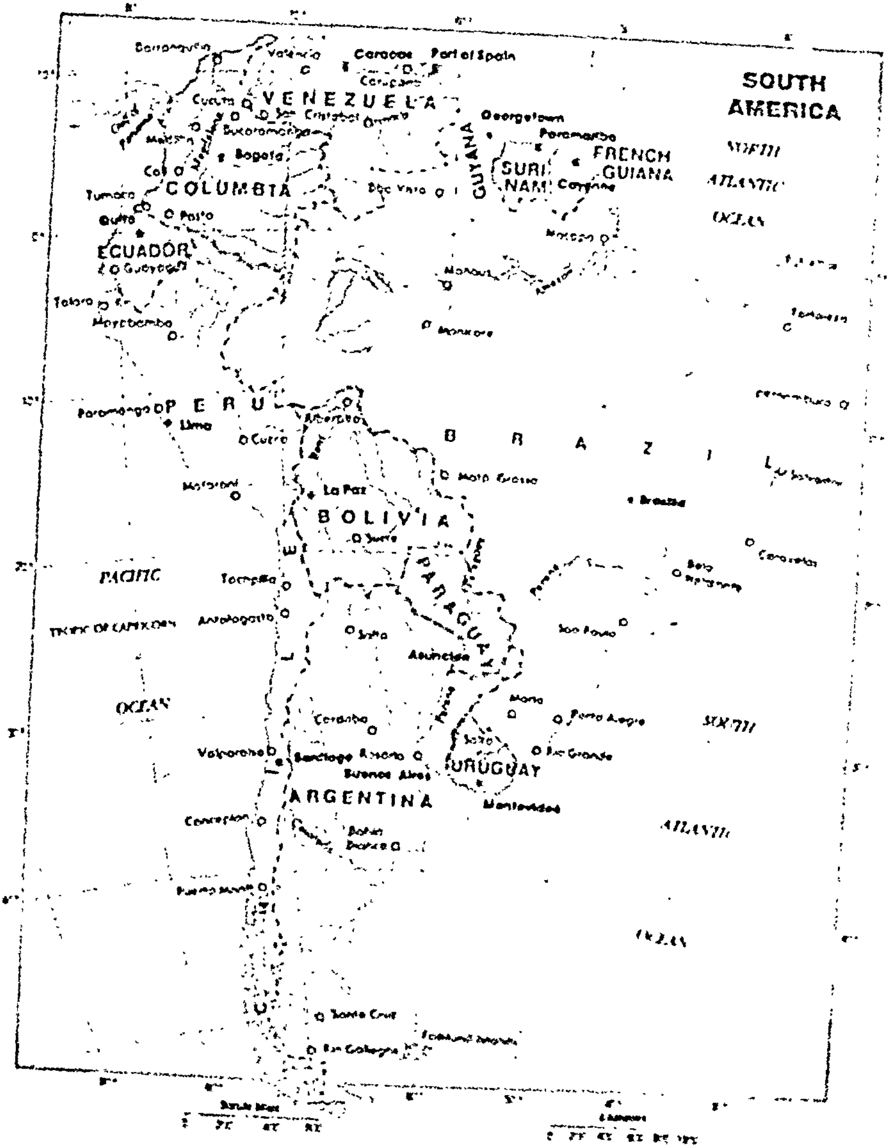
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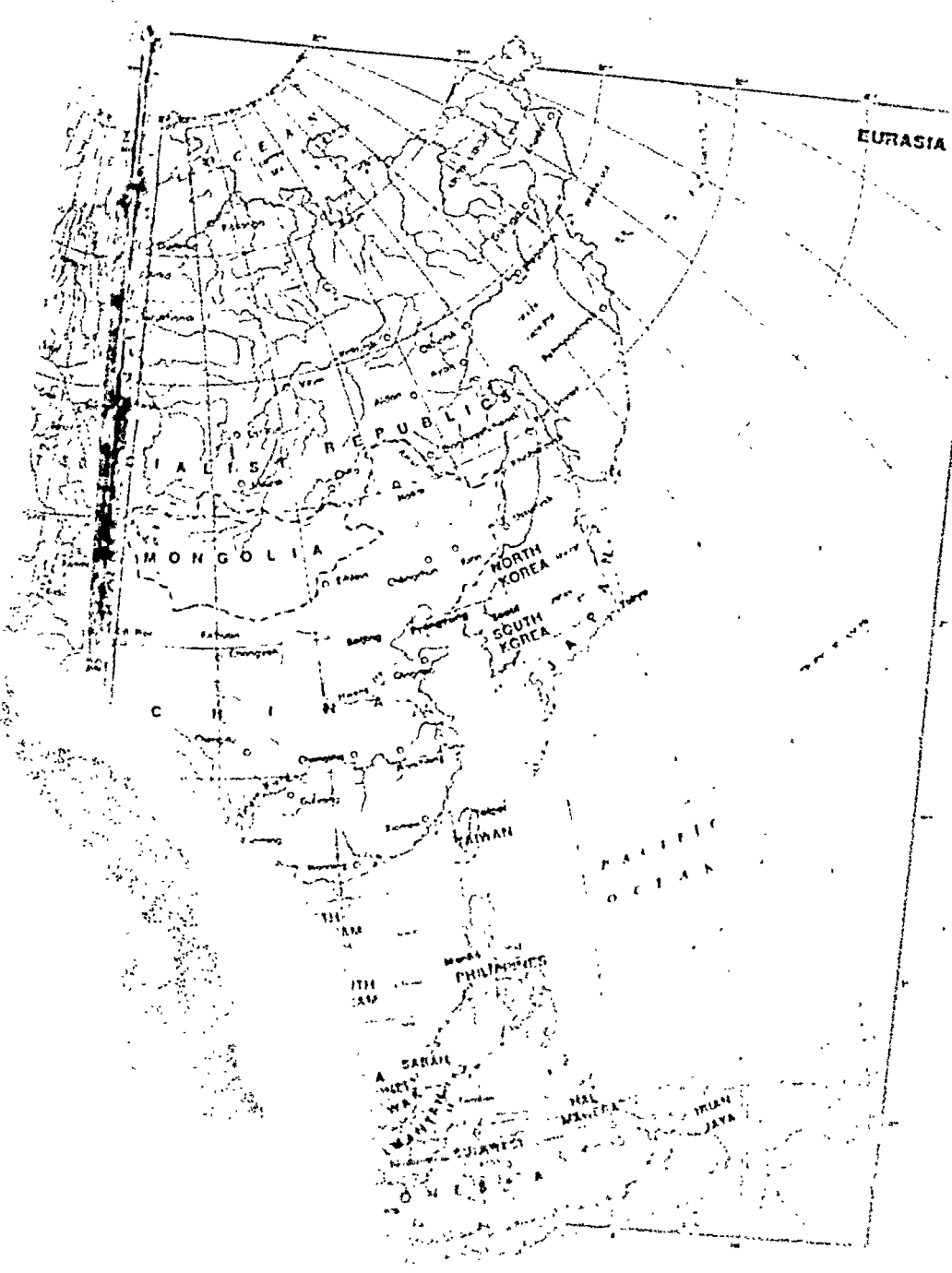
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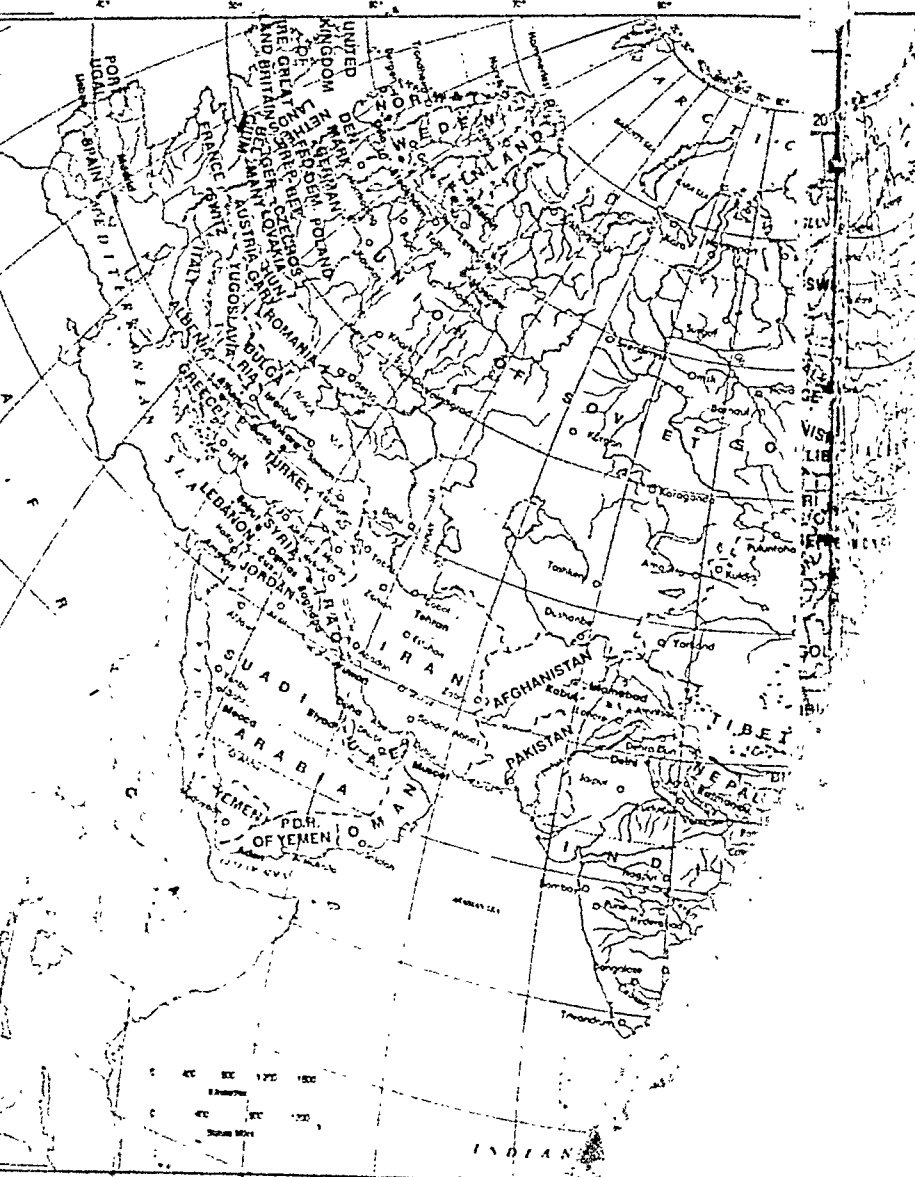

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The Dream of a New Reunification

Long-cherished Unity: Kohl and Honecker

Erich Honecker's visit to West Germany in September, 1987 has triggered off the question of the re-unification of Germany. Historically Germany was never a nation except when Bismarck united the loose collection of German States under the domination of Prussia in 1871. This ended in 1945 with the fall of Hitler and the division of Germany into East and West.

The East German leader Erich Honecker visited West Germany on September 7, 1987. This was the first visit by an East German leader to West Germany in nearly forty years. Though W. Germany does not recognise E. Germany as a nation, Honecker was accorded all the honours due to a visiting Head of State. The visit brought to the fore questions about East-West relations in Europe, the limits of detente and the economic repercussions of a united Germany — the two most prosperous economic powers in West and East Europe.

The rest of Europe watches in alarm at this resurgence of German Spirit twice in this century. German militarism reared its head to devastate Europe in two world wars. West and East Germany are the pillars of two different ideological systems and re-unification of Germany has to be considered in the context of its repercussions on NATO and Warsaw Pact alliances. Its economic consequences will also be considerable. W. Germany has become an economic superpower and Deutsche Mark is one of the strongest currencies in the world.

East and West Germany do not have diplomatic relations because Bonn refuses to recognise E. Germany as a foreign country. The preamble to W. German constitution calls for a unified Germany. Thus when the W. German Chancellor Helmut Kohl reiterated his country's goal of re-uniting the two German nations, Mr. Honecker stated that the "fatherland must stay divided" and that E. Germany was seeking peace not unity. Many Germans feel that Mr. Kohl is betraying the cause of German unity by receiving Mr. Honecker as a Head of Government.

Despite the deep ideological differences between the two German nations, the two leaders agreed to promote peace and disarmament within their respective military alliances. They also emphasised the German's special responsibility for ensuring that no war ever started on German soil. They called for improvement of bilateral relations too. In the joint communique issued after the meeting of the two leaders Mr. Honecker pledged to introduce new measures to permit more E. Germans to visit W. Germany. They also drew up three agreements on co-operation in Science & Technology, Environmental Protection and Reactor Safety. They also agreed to expand bilateral trade.

The two Germanys though divided politically has a common goal — the revival of the German Spirit. In the midst of the new millennium in the East-West German relations they may each find their place as the separate state of the same nation and German neutralism may yet become real.

Formerly a British colony and protectorate the Gambia became an independent state within the Commonwealth on Feb. 18, 1965 and a Republic in April 1970.

Peanuts are the main crop, along with rice and palm kernels. Textiles, food and manufactured goods are significant items of import.

President: Sir Dawda Kairaba Jawara.

GERMANY (East)

Cap: Berlin: **Area:** 108,179 sq km; **Pop:** 1,66,58,000. **Lang:** German; **Religion:** Christian; **Currency:** Mark. US $1 = 3.43 M.

When Germany surrendered to the Allies in 1945 the country was divided into four zones of Allied occupation. The northern section of East Prussia with about 14 per cent of the population and 24 per cent of the area of the former Reich came under Russian occupation. The area under Russian occupation was constituted into the independent socialist state of the German Democratic Republic on October 7, 1949.

Important crops of East Germany are wheat, rye, barley, oats and potatoes. Farming is organised on state-sponsored co-operative basis. The only natural power source is lignite (brown coal) which supplies 90 per cent of the basic energy. Industries are highly developed-machines, chemicals, heavy engineering and shipbuilding. Special stress is laid on quality products like optics, electronics and precision tools. The Leipzig trade fairs are well known throughout the world.

Chairman of the Council of State: Erich Honecker

Mission in India: Embassy of Germany, 2 Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 3014204.

GERMANY (West)

Cap: Bonn. **Area:** 248,625 sq km; **Pop:** 6,12,14,000, **Lang:** German; **Rel:** Christian; **Currency:** Deutsche Mark; US $1 = 3.43 DM.

The Federal Republic of Germany lies in the heart of Europe.

It was Bismarck, Chancellor of Prussia, who laid the foundation of the German Empire in 1871. After the defeat of Germany in the Second World War the erstwhile German territory was divided into two occupation areas, Russia occupying East Germany and USA, Britain and France occupying West Germany. The city of Berlin was also divided into West Berlin (USA, Britain and France) and East Berlin (Russia). West Germany came into being on May 23, 1949. The German Federal Republic consists of 10 states (Lander). West Berlin is also a state of the Federal Republic.

West Germany showed phenomenal economic growth during post-war years in industrial production, notably in iron and steel, vehicles, engineering, ship-building, electrical goods and chemicals. Since the currency reform in 1949 the economy of W. Germany has grown prodigiously.

Federal President: Richard Von Weizsaecker. **Federal Chancellor:** Helmut Kohl.

Mission in India: Embassy of Federal Republic of Germany, 6 Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 604861.

Consulates: Bombay- Hoechst House, 10th Floor, Nariman Point;

Calcutta: Hastinigs Park Road, Calcutta-700 027. Tel: 45-9141.

Madras: Consulate General of FRG, 22, C.I.C. Road, PB 6801, Madras-600 105. Tel: 471747.

GHANA

Cap: Accra; **Area:** 2,38,537 sq km; **Pop:** 1,22,05,574; **Lang:** English (official language) and eight major national languages; **Rel:** Christianity and Islam; **Currency:** Cedi, US $1=C90.

Ghana is composed of the former British Colony Gold Coast and the British-ruled Togoland in Western Africa.

Ghana got independence on 6th March 1957 and became an independent republic within the Commonwealth on July 1, 1960.

Ghana is primarily an agricultural country and produces the best quality cocoa which constitutes a major export item. Other cash crops include kolanuts, palm products, bananas, coffee, shea-nuts and rubber. It also exports timber, gold, diamonds, manganese and bauxite.

Provisional National Defence Council Chairman and Head of State: Flt. Lt. Jerry J. Rawlings.

Mission in India: High Commission of Ghana, A-42, Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670788.

The Dream of a New Reunification

Long-cherished Unity: Kohl and Honecker

Erich Honecker's visit to West Germany in September, 1987 has triggered off the question of the re-unification of Germany. Historically Germany was never a nation except when Bismarck united the loose collection of German States under the domination of Prussia in 1871. This ended in 1945 with the fall of Hitler and the division of Germany into East and West.

The East German leader Erich Honecker visited West Germany on September 7, 1987. This was the first visit by an East German leader to West Germany in nearly forty years. Though W. Germany does not recognise E. Germany as a nation, Honecker was accorded all the honours due to a visiting Head of State. The visit brought to the fore questions about East-West relations in Europe, the limits of detente and the economic repercussions of a united Germany — the two most prosperous economic powers in West and East Europe.

The rest of Europe watches in alarm at this resurgence of German Spirit twice in this century. German militarism reared its head to devastate Europe in two world wars. West and East Germany are the pillars of two different ideological systems and re-unification of Germany has to be considered in the context of its repercussions on NATO and Warsaw Pact alliances. Its economic consequences will also be considerable. W. Germany has become an economic superpower and Deutsche Mark is one of the strongest currencies in the world.

East and West Germany do not have diplomatic relations because Bonn refuses to recognise E. Germany as a foreign country. The preamble to W. German constitution calls for a unified Germany. Thus when the W. German Chancellor Helmut Kohl reiterated his country's goal of re-uniting the two German nations, Mr. Honecker stated that the "fatherland must stay divided" and that E. Germany was seeking peace not unity. Many Germans feel that Mr. Kohl is betraying the cause of German unity by receiving Mr. Honecker as a Head of Government.

Despite the deep ideological differences between the two German nations, the two leaders agreed to promote peace and disarmament within their respective military alliances. They also emphasised the German's special responsibility for ensuring that no war ever started on German soil. They called for improvement of bilateral relations too. In the joint communique issued after the meeting of the two leaders Mr. Honecker pledged to introduce new measures to permit more E. Germans to visit W. Germany. They also drew up three agreements on co-operation in Science & Technology, Environment Protection and Nuclear Safety. They also agreed to expand bilateral trade.

The two Germanys though divided politically has a common goal — the revival of the German Spirit. In the midst of the new realignments in the East-West German relations they may each find their place as the separate states of the same nation and German neutralism may yet become real.

GREECE

Cap: Athens; **Area:** 131,990 sq km; **Pop:** 9 884 000; **Lang:** Modern Greek; **Rel:** Christian; **Currency:** Drachma, US $1=143.73 Dr.

Greece or the Hellenic Republic occupies the southern part of the Balkan peninsula in the Mediterranean with the Ionian Sea on the west and the Aegean Sea on the east.

In ancient times, Greece was the seat of democracy, learning and culture. Politically independent till the first century B.C., the Greek states succumbed to Roman might in the latter half of the first century B.C. Later they came under the Byzantine and Ottoman empires in succession until 1830 when Greece regained its freedom as a monarchic state. After many vicissitudes of fortune monarchy was abolished in Greece in 1974. It is a republic since

Greece though till recently an agricultural country has now developed many industrial branches In merchant shipping, Greece owns a surprisingly big tonnage Tourism is Greece's biggest industry

President: Christos Sartzetakis. **PM:** Andreas Papendreou

Mission in India Embassy of Greece, 16 Sunder Nagar, New Delhi- 110 003. Tel: 617800

Consulate General C/o. Stewarts and Lloyds India Ltd., 41 Chowringhee Road, Calcutta-071 Tel: 24-8194.

Hon Consul. Chordia Mansion, 739 Annasalai, Madras-600 002. Tel 811566

GRENADA

Cap: St. George's, **Area:** 344 sq km; **Pop:** 1,15,000; **Lang:** English and French-African patois, **Rel:** Christian; **Currency:** Eastern Caribbean Dollar $ US $1=EC $2 70

Grenada is the southernmost of British Windward Islands and includes *Southern Grenadines* (islands), the largest of which is *Carriacou* It is a heavily wooded country with mountains of volcanic origin stretching from north to south. Grenada became independent in 1974.

The population is of mixed origin European, Negro and Carib Indians.

Tourism is a growing industry but agriculture dominates the economy. The chief exports are cocoa, nutmegs and bananas. Other crops include coconuts, citrus fruits, sugar cane, cotton and spices.

Gov. Gen. Sir Paul Scoon **PM:** Herbert Blaize.

GUATEMALA

Cap: Guatemala City; **Area:** 1,01,889 sq km; **Pop:** 81,65,000; **Lang:** Spanish (official) and Indian dialects; **Rel:** Christian; **Currency:** Quetzal US $1=Q1.

Guatemala, a republic, is the third largest of the five central American states and has the largest population. Fifty per cent of the population is of Indian (Red) extraction, 45 per cent Ladino or of mixed European and Indian parentage. The Indians are the descendants of the builders of the great Maya civilization which was wiped out by the Spanish conquisitadors.

After remaining as a Spanish colony for about three centuries, Guatemala became a republic in 1939. Guatemala's claims to British Honduras (Belize) led to the rupture of diplomatic relations with Britain in 1963.

The soil is very fertile. Agriculture is the most important occupation. The principal crop is coffee. Other important export items are bananas, cotton, gum, sugar, maize, tobacco, fruits and beef.

President: Vinicio Cerezo.

GUINEA

Cap: Conakry; **Area:** 245,857 sq km; **Pop:** 53,01,000; **Lang:** French and 8 national languages; **Rel:** Islam and Tribal; **Currency:** Syli. US $1=26 Sylis.

Guinea is a former French overseas territory in West Africa.

Under the constitution of the Fifth (French) Republic, Guinea voted for secession and proclaimed itself an independent republic on October 2, 1958.

It exports coffee, honey, bananas, palm kernels, iron and aluminium ore. Guinea has probably the world's largest deposit of bauxite.

President: Col Lansana Konte. **P.M:** Col. Diarra Traore.

GUINEA-BISSAU

Cap: Bissau, **Area:** 36,125 sq km; **Pop:** 8,44,000, **Lang:** Crioulo (Cape Verde-Guinea

dialect) and Portuguese; **Rel:** Islam, Christian and Tribal; **Currency:** Peso. US $1=88.53 Pesos.

Guinea-Bissau, formerly Portuguese Guinea, is stuck like a wedge between Senegal in the north and Guinea to the east and south. The Atlantic sea borders it on the west. The land is part plain and part plateau.

The main occupation is agriculture. Swamp rice (grown in the coastal plains), coconuts, cassava, sweet potatoes and maize form the important food crops. The cash crops are groundnuts, coconuts and palm oil. Cattle raising is widespread.

Guinea-Bissau unilaterally declared independence in 1973. Portugal recognised its independence in 1974.

President: Maj. Joao Barnardo Vieira.

GUYANA

Cap: Georgetown; **Area:** 2,14,969 sq km; **Pop:** 9,36,000; **Lang:** English; **Rel:** Christian, Hindu and Islam; **Currency:** Dollar. US $1=4.15 G$.

Guyana (former British Guiana) lies on the north east coast of South America.

Guyana became a British possession in 1814 and an independent sovereign state within the Commonwealth of Nations on May 26, 1966.

The economy is based on agriculture. Sugar, rice and bauxite are the main exports. There are considerable deposits of gold and diamonds. Dense tropical forests cover much of the land.

President: Desmond Hoyle; **P.M:** Hamilton Greene.

Mission in India: High Commission of Guyana, 85 Poorvi Marg, Vasant Vihar, New Delhi-110 057. Tel: 674194/5.

HAITI

Cap: Port-au-Prince; **Area:** 27,750 sq km; **Pop:** 6 419 000; **Lang:** French (official), a Creole dialect is generally spoken; **Rel:** Christian and Voodoo; **Currency:** Gourde. US $1=5 Gourdes.

Haiti is part of the West Indies known as Hispaniola in the Atlantic lying between Cuba on the west and Puerto Rico on the east. Negroes form the majority of the population, the rest being mulattoes descended from former French settlers and slaves. The French colony proclaimed itself an independent republic in 1804.

Coffee is the chief agricultural product, others being sisal, cotton, raw sugar, cocoa and tobacco. Rice is grown for home consumption. Rum and other spirits are disitlled from molasses and exported. Bauxite is the chief mineral exported. Tourism is Haiti's second largest source of foreign exchange.

President: Six-man military council took over government after the ouster of Jean Claude Duvalier on February 8, 1986.

Mission in India: Consulate of Haiti, 186 Sarat Bose Road, Calcutta-700 029. Tel: 46-1164.

HONDURAS

Cap: Tegucigalpa, D.C.; **Area:** 112,088 sq km; **Pop:** 4 232 000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Lempira also known as Peso. US $1=2 Lempiras.

Honduras is a republic of Central America lying between Nicaragua, El Salvador and Guatemala. It has a long northern coastline on the Caribbean and a narrow southern outlet to the Pacific.

Originally a Spanish colony, Honduras became independent in 1821. The country has gone through a series of dictatorships, military juntas, coups and counter-coups.

The chief crop is bananas which constitute 65 per cent of the country's exports. Coffee, cotton, maize and tobacco are also grown. Timber is abundant and cattle raising is a major occupation.

President: Jose Azcona Hoyo.

HONG KONG

Cap: Victoria, **Area:** 1051.7 sq km; **Pop:** 5 498 000; **Lang:** English and Cantonese; **Rel:** Confucianism and Buddhism; **Currency:** Hongkong Dollar. US $1=HK$ 7.80.

Lying along the south east coast of China, at the mouth of the Canton river, Hong Kong comprises Hong Kong island, Kowloon Peninsula, the New Territories and over 230 small islands. Hong Kong has been a British colony since 1843. The New Territories were acquired by Britain in 1898 by lease for 99 years. According to an agreement signed on 19 Dec. 1984, China would recover sovereignty over Hong Kong from 1 July 1997 and establish it as a Special Administrative Region.

The population is almost entirely Chinese with a sprinkling of other nationalities.

Hong Kong is one of the world's greatest transhipment ports. It specialises in light industries—cotton textile, plastics, electronic, photographic and optical equipments etc.

Gov. Gen: David Wilson

HUNGARY

Cap: Budapest; **Area:** 93,033 sq km; **Pop:** 10 786 000; **Lang:** Hungarian, Magyar; **Rel:** Christian; **Currency:** Forint, US $1=52.73 Forints.

Hungary is a socialist country in Central Europe. The eastern half of Hungary is mainly a great fertile plain, 'the Great Plain'. The west and the north are hilly.

Hungary had a stormy history being successively overrun by Huns, Magyars, Turks, Hungarians and Austrians. Hungary became an independent republic in 1918 and the Hungarian Socialist Republic in 1919.

Although an agricultural country in the past, industry has come to account for more than half of its total economy since the Second World War. Hungary exports engineering products, machine tools, motor vehicles and electrical and electronic goods. Chief imports are iron ore, coal, crude oil and consumer goods. More than 97 per cent of agricultural land is collectivised. Vineyards occupy around 186,000 hectares.

Chairman of the Persidential Council: Karoly Nemeth, **PM:** Karoly Grosz.

Mission in India: Embassy of Hungary, 2/50, Marg, Chanakyapuri, New Delhi- 110 021. 371152.

ICELAND

Cap: Reykjavik; **Area:** 102,846 sq km; **Pop:** 239 000; **Lang:** Icelandic; **Rel:** Christian; **Currency:** Krona US $1=Kr. 42.92.

Iceland is an island close to the Arctic Circle in the North Atlantic. The Norwegian Sea is on the eastern side of Iceland. The warm Gulf Stream makes the winters mild. During the short cool summers, there is perpetual daylight for many weeks—making it an *island of the Midnight Sun.* The island has many geysers and hot springs. Natural hot water from Iceland's hot springs is pumped into towns, providing heat for offices and residences. Iceland has over 200 volcanoes, many of them still active.

The people of Iceland are the descendan of the dare-devil Vikings of Norway, the first whom settled in Iceland in A.D. 874 and wh are reputed to have first discovered Greenlan (A.D. 982) and North America (A.D 1000). Aft having been independent till the 13th centu it became part of Norway, and then passe under Danish rule. In 1941 the Althing (Parli ment) voted for complete independence and republic was formed on June 17, 1944.

Much of the land in Iceland is uncultivate Potatoes and turnips are the major crop Fishing industry is highly developed ar forms the mainstay of Iceland's economy.

President: Vigdis Finn Bogadottir.

Mission in India: Embassy of Iceland, D- 3 Pamposh Enclave, New Delhi.

Consulate: Bombay— 38, Western Ind House, Sir P.M. Road.

INDIA

(See Part III)

INDONESIA

Cap: Jakarta; **Area:** 1,904,569 sq km; **Po** 165,153,600; **Lang:** Bahasa Indonesian; **Re** Islam; **Currency:** Rupiah. US $1 = 10 Rupiahs.

Indonesia is an archipelago state consisti of over 13,000 (6000 inhabited) islands. T five main islands are Java, Sumatra, Kalimant (Indonesian Borneo), Sulavesi and Irian Ja (West New Guinea) with 30 smaller archipel goes. The capital is Jakarta, the former city Batavia, on the island of Java. The country divided into 27 provinces.

The Japanese army occupied Indones from 1942 till 1945 after the surrender of t Dutch army. The Indonesian people pro laimed their independence on August 1945. After a war of independence, the Nethe lands transferred sovereignty to Indonesia December 27, 1949.

One of the world's richest countries natural resources, Indonesia has vast suppli of tin, oil and fairly big deposits of bauxi copper, nickel, gold and silver. Agriculture the main occupation of the people. Cro include rice, tobacco, coffee, rubber, pepp kapok, coconut, palm oil, tea and sugarcan Forest products are a major source of forei exchange.

President: Gen. Soeharto.

Mission in India: Embassy of Indonesia, 50-A, Chanakyapuri, New Delhi- 110021. Tel: 602352.

Consulate: Bombay— Lincoln Annexe, 17, Altamount Road, Cumballa Hill.

Calcutta: Rajkamal Bhavan, 128 Rashbehari Ave, Calcutta-700 029. Tel: 46-8297.

IRAN

Cap: Teheran; **Area:** 1,648,000 sq km; **Pop:** 43 799 000; **Lang:** Persian (Farsi) **Rel:** Islam; **Currency:** Rial. US $1=97.21 Rial.

Iran (Persia) is a country of great antiquity, celebrated alike for its culture and military valour.

The last of the Pahlavi dynasty, Mohammed Reza, was forced to flee Iran in face of nation-wide revolt against him. In Feb. 1979 Ayatollah Khomeini, a highpriest of Islam, returned to Iran to guide its destiny.

Agriculture is the major occupation of the people. The chief agricultural products are wheat, barley, rice, fruits, wool and sugar beets. Sturgeon fish (from which caviar is obtained) in Caspian Sea provides an important source of income. Iran is one of the biggest oil producing regions in the Middle East. Emeralds and other gems are found in Khorassan and Kerman. Persian carpets, made on handlooms are famous the world over.

President: Ayatollah Hojatoleslam Ali Khamenei. **Prime Minister:** Mir Hussein Mussavi

Mission in India: Embassy of the Islamic Republic of Iran, 5, Barakhamba Road, New Delhi- 110001. Tel: 385491.

IRAQ

Cap: Baghdad; **Area:** 438446 sq km; **Pop:** 15 158 000; **Lang:** Arabic (official) and Kurdish; **Rel:** Islam; **Currency:** Iraqi Dinar. US $1=0.311 Dinar.

Iraq is the modern name for Mesopotamia (Meso - middle, Potamia- rivers), the land lying between the two great rivers, Euphrates and Tigris.

Iraq is one of the most ancient countries of the world and has produced a culture—the Mesopotamian Civilization —which has influenced European and Asian civilizations.

Petroleum is the most important sector of the economy. Iraq occupies the fifth place among oil-producing countries of the world. A programme of industrialisation is on with the oil revenues. Three quarters of the population depend on agriculture for their living. Iraq is the world's largest exporter of dates.

President: Sadam Hussein Takriti.

Mission in India: Embassy of Iraq, 169/170/171, Jor Bagh, New Delhi 110003. Tel: 618011.

Consulate: Bombay — Panorama, 203, Walkeshwar Road.

IRELAND

Cap: Dublin; **Area:** 70,282 sq km; **Pop:** 3,555,000; **Lang:** Irish and English; **Rel:** Christian; **Currency:** Irish Pound. US $1=1R£ 0.98.

Ireland or Eire, the Emerald Isle, is an island in the N. Atlantic lying west of Great Britain.

The independent state of Ireland consists of only 26 counties out of the 32 that make up the whole island. The 6 remaining counties form the area known as Northern Ireland which is directly administered by the United Kingdom.

Ireland emerges into history with the coming of St. Patrick in 432 A.D. and the spread of Christianity. An invasion led by Norman barons during the 12th century led to a period of almost eight centuries of British rule in Ireland. In 1921 Great Britian recognised Ireland as a more or less independent unit within the Commonwealth and the country became known as the Irish Free State. In 1932 the Fianna Fail party under Eamon de Valera came to power and gradually removed the last vestiges of allegiance to the British Crown. In 1937 a new constitution was adopted which made Ireland effectively a republic. In 1949 Ireland formally declared itself a Republic and ceased to be a member of the Commonwealth. In 1973 the country joined the EEC.

Ireland had formerly a mainly agricultural economy. However, in recent decades industrial output has expanded rapidly due to increased foreign investment. Exports make up 50% of GNP, the main items being dairy products, food and beverges, machinery and live animals.

President: Patrick John Hillery; **PM:** Dr. Garret Fitzgerald.

Mission in India: Embassy of Ireland, 13 Jor Bagh, New Delhi- 110 003. Tel: 617435.

Consulate: Bombay — Royal Bombay Yacht Club Chambers, Apollo Bunder, Bombay-400 039.

ISRAEL

Cap: Jerusalem; **Area:** 20,325 sq km; **Pop:** 4,216,000; **Lang:** Hebrew (official) and Arabic; **Rel:** Judaism; **Currency:** Shekel. US $1=783 Shekel.

A republic of the Middle East (West Asia), Israel is surrounded on three sides by Arab countries.

The republic occupies the minor portion of ancient Palestine.

On November 29, 1947, the UN partitioned Palestine between the Jews and the Arabs. A new Zionist state called Israel was proclaimed in the Jewish area of Palestine on May 15, 1948.

Israel has developed both agriculture and industry in the little land allotted to it with considerable expertise and efficiency. They have literally made the deserts bloom. Kibbutzim (collective cultivation), irrigation schemes and reclamation of desert-land formed the main features of agricultural development. Citrus fruits are the main exports. Wine-making is an extensive industry. In diamond-cutting, Israel comes next only to Belgium. The Valley of Jordan and the Dead Sea yield rock salt, sulphur and potash.

President: Chaim Herzog, **P.M:** Yitzhak Shamir.

ITALY

Rome; **Area:** 301,253 sq km; **Pop:** 724,000, **Lang:** Italian; **Rel:** Christian; **Cur-** Lira US $1=1500 Lire.

The Italian Republic occupies the long peninsular area in Europe extending from the Alps into the Mediterranean Sea. The islands of Sicily, Sardinia, Elba and Capri in the Mediterranean belong to Italy.

Italy, once the headquarters of the great Roman Empire, disintegrated into many petty states during the later Middle Ages. Modern Italy began to develop when King Victor Emmanuel II of Savoia became King. The Vatican was recognised as an independent state on February 11, 1929. On April 28, 1945 Mussolini, the Fascist dictator, was put to death. Consequent on a referendum on June 2, 1946, Italy voted for a republic. The King laid down his kingship.

Since World War II, Italy has revolutionised agricultural production. The chief crops are grapes, wheat, sugarbeet, fruit and vegetables. Italy is among the highly industrialised co tries of the world. Its main products electrical, mechanical and electronic gadg automobiles and chemicals. Italy has a merchant marine fleet with a gross tonnage over 11 million, and air fleet with the capa of over 12 billion passengers/km and ove billion tons/km.

President: Francesco Cossiga, **P.M:** Gi anni Goria.

Mission in India: Embassy of Italy, 13, G Links, New Delhi- 110 003. Tel: 618311.

Consulates: Bombay — Consulate Gene of Italy, Vaswani Mansion, 120, Dinsha Wach Road.

Calcutta: 3, Raja Santosh Road, Calcu 700 027. Tel: 45-1411.

Madras: 5th Floor, Sudarshan Bldg. No. Chamiers Road.

IVORY COAST

Cap: Abidjan; **Area:** 322,462 sq km; **P** 9,474,000; **Lang:** French (official) and Tril **Rel:** Islam and Christian; **Currency:** Fr CFA. US$1=523.75 F CFA.

The Ivory Coast is bordered by Mali Burkina Faso in the north, Ghana in the e the Gulf of Guinea in the south, and Libe and Guinea in the west.

The Republic of Ivory Coast, once overseas territory of France, became indep dent in August 1960.

Agriculture, forestry and fishing employ per cent of the population. Ivory Coast is third most important coffee producer in world and the most important African prod er of timber. Cocoa, bananas and pineapp are the other important cash crops.

President: Felix Houphouet-Boigny.

JAMAICA

Cap: Kingston; **Area:** 10,991 sq km; **P** 2,290,000; **Lang:** English; **Rel:** Christian; **C rency:** Jamaican Dollar US $1=J $ 5.17.

Jamaica, an island in the Greater Anti group of the West Indies, is situated in Caribbean Sea, 144 km south of Cuba. climate varies with altitude, being tropica sea-level and temperate in the mountain a

Jamaica was visited by Columbus in 1 and ruled by Spain till 1655 when Bri

occupied it. In 1962 Jamaica became fully independent as a member of the Commonwealth.

Agriculture, mining and tourism form the backbone of the economy. The dominant crop is sugar, with molasses and rum as important by-products. Bananas, citrus fruits and coconuts are also grown. Jamaica is the world's second largest producer of bauxite and alumina. Other industries are cement, tobacco and consumer goods.

Head of State. Queen Elizabeth II. **Gov. Gen:** Florizel Augustus Glasspole. **P.M:** Edward Seaga.

JAPAN

Cap: Tokyo; **Area:** 377,765 sq km; **Pop:** 121,000,000; **Lang:** Japanese; **Rel:** Shinto and Buddhism; **Currency:** Yen. US $1=143 Yen.

Japan consists of four main islands, Honshu (Mainland), Hokkaido, Kyushu and Shikoku and a number of smaller islands of which Okinawa is one. Japan is separated from the Soviet Union and Korea by the Sea of Japan and from China by the East China Sea. Japan has a deeply indented coastline measuring 16,654 miles. Most important ports are Yokohama, Kobe, Nagoya and Osaka.

Main Islands of Japan

Name	Area (sq km)	Major city.
Honshu	22,414	Tokyo
Hokkaido	78,073	Sapporo
Kyushu	36,555	Kitakyushu
Shikoku	18,257	Matsuyama

Legend has it that the Japanese Empire was founded by Emperor Jimmu in 660 B.C. However, there was no centralised authority till A.D. 1868 when Emperor Meiji united the whole of Japan under his rule. Japan had little trade relations with foreign countries until Commodore Perry of USA in 1854 persuaded the Japanese to enter into a trade treaty with USA. In 1889 Japan had its first constitution. Japan's victory in the Russo-Japanese War of 1904-05 raised her prestige among European powers.

Rice, the staple food of Japan, is cultivated in half the area of arable land. Other crops are wheat, barley, potatoes and tobacco. Except for limestone and sulphur, Japan is poor in minerals and Japanese industry is heavily dependent on imported raw materials and fuel. Japan is one of the most industrially advanced countries of the world. The principal industries are motor vehicles, iron and steel, chemicals, textiles (cotton, wool, silk and synthetics),fishing, ceramics, precision instruments, fertilizers, machinery and shipbuilding. Japan has evolved an extensive fishing industry.

Head of State: Emperor Hirohito, **P.M:** Noburu Takeshita.

Mission in India: Embassy of Japan, Plot No. 4 & 5, 50G Shantipath, Chanakyapuri, New Delhi- 110 021. Tel: 604071.

Consulates: Bombay — [illegible] Dahanukar Marg, Cumbal

Tokyo the Costliest

At least 33 major cities in the world are more expensive than New York because of the plunging value of the U.S. dollar, a global cost-of-living survey reported in 1987.

Tokyo tops the list and is now twice as costly as New York, while some other cities are 50 per cent more expensive, says Business International, a consulting company. Figures as of Jan. 31 1986 make Tokyo the world's most expensive city — at 191 points or 91 per cent above New York's base of 100 points. In Europe, the cities more expensive than New York include: Geneva (134), Zurich (131), Vienna (127), Copenhagen (125), Oslo (123), Helsinki (122), Munich (117), Hamburg (117), Berlin (116), Paris (116), Dusseldorf (115), Frankfurt (115), Milan (114), Lyon (113), Rome (113), Dublin (113), Amsterdam (108), Brussels (108) and Stockholm (105).

Surveys are based on a weighted index for costs of a food shopping basket, alcoholic beverages, household supplies, personal care items, tobacco, utilities, clothing, domestic help, recreation, entertainment, and transportation. The findings are widely used by companies in paying cost-of-living compensation to expatriate personnel.

Calcutta: 12, Pretoria Street, Calcutta-700 071. Tel: 44-2241.

Madras: 60 Spur Tank Road, Chetput, Madras-600 031. Tel: 665594.

JORDAN

Cap: Amman; **Area:** 97,740 sq km; **Pop:** 3,375,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dinar. US $1=JD 0.360.

A constitutional monarchy in south-west Asia, Jordan was popularly known as Trans-Jordan till 1949, when the popular name was changed to the Hashemite Kingdom of Jordan. The population is chiefly Arab of whom the majority are Muslims. In 1946, Jordan became an independent state.

Jordan is largely a desert area, but the western portion is fertile and produces citrus fruits, wheat, barley, lentils, and water melons. Phosphates make up the country's most important export item, but tourism remains its main foreign exchange earner.

Head of State: King Hussein Ibn Talal **P.M:** Zaid Rifai.

Mission in India: Embassy of Jordan, 35, Malcha Marg, Chanakyapuri, New Delhi-110 021. Tel: 3013495

KAMPUCHEA

Cap: Phnom-Penh; **Area:** 181,035 sq km; **Pop:** 7,149,000; **Lang:** Khmer; **Rel:** Theravada Buddhism; **Currency:** Riel.

People's Republic of Kampuchea was originally called *Cambodia* and for some time— between Oct. 1970 and May 1975—was known as Khmer Republic.

Kampuchea is an undeveloped country with 50 per cent of its land covered by virgin forests. Rice occupies 80 per cent of the cultivated area. Cattle rearing and fishing are fairly well developed. The forests are rich in valuable timber. Iron, copper, manganese and gold are also found.

President: Heng Samrin, **P.M:** Hunsen.

Mission in India: Embassy of the People's Republic of Kampuchea, E 23, Defence Colony, New Delhi-110 024. Tel: 693417.

KENYA

Cap :Nairobi; **Area:** 582,646 sq km; **Pop:** 19,761,000; **Lang:** National - Kiswahili; official - English; **Rel:** Tribal, Christian and Islam **Currency:** Shilling. US $1=16.2 Shilling.

Formerly a British colony, Kenya became an independent republic within the Commonwealth in 1964.

Kenya's prosperity rests largely on agricultural products. The chief cash crops are coffee, tea, sisal, cereals, wattle, and pyrethrum. Kenya is one of the few African countries with an important dairy industry. Mineral industries are being organised. Tourism has expanded considerably.

President: Daniel Arap Moi.

Mission in India: High Commission of Kenya, 66, Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 672303.

KIRIBATI

Cap: Tarawa; **Area:** 861 sq km; **Pop:** 603 **Lang:** Gilbertese and English; **Rel:** Christi **Currency:** Dollar.

Gilbert Islands, till recently a British colo became independent under the name Kirib (pronounced Kiribas) on July 11, 1979.

These islands, spread over a vast area in t Western Pacific, number around 33. All islan except Ocean Island (Banaba) are low atc with coconuts, pandanus and bread fr forming the main vegetation. The populati is Micronesian and Polynesian. Agriculture a fishing are the main occupations. Ocean Isla has high grade phosphatic deposits which being mined and exported. Copra is the otl major export item.

President: Ieremia Tabai.

KOREA (North)

Cap: Pyongyang; **Area:** 1,20,538 sq km; P 1,96,30,000; **Lang:** Korean; **Rel:** Buddhi and Confucianism; **Currency:** W US $1=0.94 Won.

The Democratic People's Republic of Ko occupies the northern part of the Kore peninsula

During the Second World War, Amer occupied South Korea and Russia,North Kor At the Potsdam Conference, the 38th para of latitude was recognised as the line division between the occupation areas Russia and America. North Korea was form into the Democratic People's Republic Korea on Sept. 9, 1948.

All industries are nationalised and land distributed among the peasants. Agriculture has since been collectivised. Industrial development has concentrated on heavy industry, electricity, metallurgy, machinery and chemicals. The country is rich in coal and iron and many non-ferrous metals. It is one of the five leading countries of the world in the production of tungsten, graphite and magnestie.

President: Kim Il Sung, **PM:** Kang Song San.

Mission in India: Embassy of the Democratic People's Republic of Korea, 42-44 Sunder Nagar, New Delhi-110 003. Tel: 617140.

KOREA (South)

Cap: Seoul; **Area:** 98,859 sq km; **Pop:** 4,03,09,000; **Lang:** Korean. **Rel:** Buddhism, Christianity and Confucianism; **Currency:** Won. US $1=843.80 Won.

The Republic of Korea forms the southern part of the Korean peninsula. The Republic of Korea was formally proclaimed on August 15, 1948.

Agriculture is the mainstay of the economy. The chief crop is rice. Wheat, barley and potatoes are also cultivated. Fish is both an export item and a source of food. There are substantial coal deposits. Other minerals include iron, tungsten, graphite and fluorite. Of late they have made big leaps in industry — textiles, electronics, steel and petrochemicals.

President: Gen. Chun Du Hwan; **P.M.:** Kim Chung-Yul.

Mission in India: Embassy of the Republic of Korea, 9 Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 601601.

KUWAIT

Cap: Kuwait City; **Area:** 17,656 sq km; **Pop:** 17,03,000; **Lang:** Arabic and English; **Rel:** Islam; **Currency:** Dinar. US $1=KD 0.307.

Kuwait, a small Arab state, is on the north western coast of the Persian Gulf between Iraq and Saudi Arabia. Kuwait is one of the richest countries in the world.

Kuwait was traditionally under the rule of the Al-Saban dynasty, founded in 1756. It became an independent state on June 19, 1961.

Kuwait is the world's fourth largest producer of petroleum.

Amir: Shaikh Jabir al-Ahmad al-Jabir al-Sabah. PM: Shaikh Saad al-Abdullah al-Salem al-Sabah.

Mission in India: Embassy of Kuwait, 5-A, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600791.

LAO P.D.R.

Cap: Vientiane; **Area:** 2,36,800 sq km; **Pop:** 3,600,000; **Lang:** Lao & Tribals; **Rel:** Buddhism; **Currency:** Kip. US $1=K35.

Laos–Lao People's Democratic Republic — occupies a strategic position in south east Asia. Laos became an independent republic in 1949.

The chief products are rice, tobacco, cotton, benzoin, shellac, tin, lead, zinc and teak wood. Other industries exist but on a very small scale.

President: (Ag.) Phoumi Vongvichit; **PM:** Kaysone Phomvihane.

Mission In India: Embassy of the Lao P.D.R., 20 Jor Bagh, New Delhi-110 003. Tel: 616187.

LEBANON

Cap: Beirut; **Area:** 10,400 sq km; **Pop:** 26,44,000; **Lang:** Arabic; **Rel:** Christianity and Islam; **Currency:** Pound. US $1=£Leb. 18.75.

The Republic of Lebanon occupies a strip of land along the Mediterranean coast between Syria and Israel. Lebanon became independent in 1941.

Primarily an agricultural country, Lebabon produces olive oil, grain and fruits. The chief industries are oil refining, food processing and cement. Tourism is a valuable source of income.

President: Amin Gemayel **PM:** Selim Hoss.

Mission in India Embassy of Lebanon, 10, Sardar Patel Road, New Delhi-110 021. Tel: 3013174.

Consulate Calcutta– 27A, Camac Street, Calcutta-700 016 Tel 44-7867.

LESOTHO

Cap: Maseru, **Area:** 30,355 sq km; **Pop:** 14,81,000, **Lang:** English and Sesotho; **Rel:** Christian and Tribal; **Currency:** Loti (pl. Maloti) US $1=2.06 Maloti.

The Kingdom of

Fury in Beirut as the Lebanese Pound Falls: Looters attacked a currency exchange shop in West Beirut during a protest over the decline in value of the Lebanese pound, which lost 71 per cent of its value in 1987, sending prices of the basic goods that Lebanon imports sharply higher. Several hundred demonstrators marched on Lebanon's central bank, and protesters blocked the road to Beirut airport with burning tires. The bank suspended trading in the currency to try to stop speculation.

within the Republic of South Africa. Lesoth was a British protectorate under the nam Basutoland. It became independent as Lesoth on Oct. 4, 1966.

The principal occupation is agricultur Lesotho possesses water and hydro-electr resources of great potential. Live-stock, d amonds, wool and mohair are the mai exports.

Head of the State: King Moshoeshoe. **PM** Chief Leabua Jonathan.

LIBERIA

Cap: Monrovia; **Area:** 1;11,369 sq km; **Po** 21,23,000; **Lang:** English and Tribal; **Re** Christian. **Currency:** Dollar. US $1=1 Lib rian $.

Liberia lies on the Atlantic coast of Africa. was founded in 1822 and declared a republ on July 26, 1847.

About 90 per cent of the population engaged in agriculture, much of it at subsi ence level. Main crops are cassava, coffe cocoa and palm oil. Iron ore and rubber a the main exports.

President: Maj. Gen. Samuel Kanyon Do

Mission in India: Embassy of the Republic Liberia, Plot No. 79, Poorvi Marg, Vasant Vih New Delhi-110 057.

Consulate General: 186 Sarat Bose Roa Calcutta-700 029. Tel: 46-1164.

LIBYA

Cap: Hun; **Area:** 17,59,540 sq km; **Po** 35,00,000; **Lang:** Arabic; **Rel:** Islam; **Curre cy:** Dinar. US $1=LD 0.30.

An Arab state on the north coast of Afri Libya changed its name to 'The Social People's Libyan Arab Jamahiriya' in 19 'Jamahiriya' means 'State of the masses'.

Formerly an Italian colony, Libya became independent state in 1949. The capital w shifted from Tripoli to Hun in 1987.

The main agricultural products are dat olives, almond and citrus fruits. Fishing, tob co processing, dyeing and weaving are i important industries. Oil was discovered 1957 and today Libya is one of the leadi producers of oil in the world.

Leader of the Great 1st of Septemb Revolution: Col. Muamar Al-Qudhafi; **P.M**

Jadallah Abu-al-Talhi.

Mission in India: People's Bureau of the Socialist People's Libyan Arab Jamahiriya, 22, Golf Links, New Delhi-110 003. Tel: 697717.

LIECHTENSTEIN

Cap: Vaduz; **Area:** 160 sq km; **Pop:** 26,512; **Lang:** German; **Rel:** Christian; **Currency:** Swiss Franc.

Liechtenstein is a small state on the upper Rhine, between Austria and Switzerland. It measures 24 km from north to south and 9 km from east to west. It became an independent kingdom in 1866.

The economy is mainly industrial. Chief industries are machines and tools, textiles, foodstuffs and leatherware.

Head of State: Prince Franz Josef. **PM:** Hans Brunhart.

LUXEMBOURG

Cap: Luxembourgville; **Area:** 2586 sq km; **Pop:** 3,66,000; **Lang:** French, (English and German are freely spoken); **Rel:** Christian, 95% Roman Catholics); **Currency:** Luxembourg Franc (LF).

Luxembourg is a small state lying in between Germany, Belgium and France. It is a Grand Duchy.

Its independence was confirmed by the Treaty of London in 1867.

As a member of the European Economic Community, the Benelux, the European Steel and Coal Community and the Euratom, Luxembourg is a highly industrialised state. Its iron deposits form the basis of a big steel industry, which accounts for 70 per cent of the country's exports. Agriculture occupies only 10 per cent of the population.

Head of the State: Grand Duke Jean. **President:** Jacques Santer.

Mission in India: Consulate General of the Grand Duchy of Luxembourg, 2 Panchsheel Marg, Chanakyapuri, New Delhi-110 021. Tel: 3015855.

MACAO

Cap: Macao; **Area:** 15.5 sq km; **Pop:** 2,61,680; **Lang:** Portuguese and Cantonese; **Rel:** Confucianism; **Currency:** Pataca. HK $100=103 Patacas.

Macao or Macau is a tiny Portuguese possession in South China, at the mouth of the Sinkiang river. The territory consists of the Macao peninsula and the adjoining islands of Taipa and Coloane. China has permitted Macao to continue as an independent territory mainly because of the big entrepot trade it commands. Macao is a free market for gold and an infamous centre of smuggling and gambling.

The population is almost entirely Chinese. Industry, once restricted to matches and fireworks, now includes plastics, textiles, cameras, binoculars and such other consumer items. Cultivation is sparse. Only rice and vegetables are grown.

Governor: Cdr. Vsco Almeida e Costa.

MADAGASCAR

Cap: Tananarive; **Area:** 5,87,341 sq km; **Pop:** 97,31,000; **Lang:** Malagasy and French; **Rel:** Islam; **Currency:** Franc. US $1=719.84 FMG.

Madagascar, formerly a French overseas territory, is a large island about 500 km long off the coast of Mozambique. It became independent in 1960.

The economy is essentially agricultural. Rice is the staple food and coffee the chief export. Tobacco, cloves and vanilla are also cultivated. Large herds of cattle are raised. Mineral deposits include graphite, mica, nickel and copper. Since 1960, chromite is being mined.

President: Comdr. Didier Ratsiraka; **PM:** Lt. Col. Desire Rakotoarijaona.

MALAWI

Cap: Lilongwe; **Area:** 1,18,784 sq km; **Pop:** 67,88,000; **Lang:** English and Chichewa; **Rel:** Tribal and Islam; **Currency:** Kwacha. US $1=K1.64.

Malawi is bounded by Tanzania, Mozambique and Zambia. Lake Nyasa lies on its eastern side. A land of lakes and mountains, Malawi has infinite beauty and is considered a tourists' paradise. Malawi, formerly Nyasaland, became independent in 1966.

Poor in resources, Malawi's agriculture is still at a subsistence level. The chief cash crops are tea and tobacco, sugar and cotton

President: Hastings Kamuzu

MALAYSIA

Cap: Kuala Lumpur; **Area:** 3,30,434 sq km; **Pop:** 1,52,04,000; **Lang:** Bahasa Malaysia; **Rel:** Islam. **Currency:** Ringgit. US$1=2.4 Ringgit.

Malaysia is a federation of 13 states comprising Johor, Kedah, Kelantan, Melakaa, Nigeri Sembilan, Pahang, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor and Terengganu. Each state has its individual appeal and characteristics.

Malaysia has a multi-racial populace. Total population is about 15 million consisting of 55 per cent Malays, 33.4 per cent Chinese, 10.1 per cent Indians and 1.4 per cent others.

Malaysia achieved its independence in 1957.

Malaysia is the world's largest producer of rubber, tin and palm oil. Malaysia is also the world's leading exporter of pepper and timber. Other crops of significance are coconut, vegetables, pineapples, coffee, tea, cocoa, etc.

Iron ore, gold, ilmenite and bauxite are the major mineral resources. The petroleum industry in Malaysia is becoming significantly important to the economy of the nation. Leading industries are food products, tobacco, wood products, electrical goods, textiles, chemical products, construction goods, non-metallic products, transport equipment and the processing of agricultural products from estates (eg. rubber, palm oil).

Supreme Head of State: Sultan Mahmood Iskandar Ibni Al-Marhum Sultan Ismail. **P.M.:** Dr. Mahathir bin Mohamad.

Mission in India: High Commissioner of Malaysia, 50-M Satya Marg, Chanakyapuri, New Delhi-110 021. Tel: 601291.

Madras: Hon. Consul, No. 23, Khader Nawaskhan Road, Madras-600.

MALDIVES

Cap: Male; **Area:** 298 sq km; **Pop:** 1,68,000; **Lang:** Divehi; **Rel:** Islam; **Currency:** Rufiyaa (Maldivian Rupee).

Maldives (literally, islands of Male-from the Sanskrit 'dweep' meaning island) is an archipelago in the Indian Ocean, to the southwest of India and west of Sri Lanka. The archipelago consists of 12 coral atolls and about 2000 small islands. It extends for about 300 miles north to south.

The Maldives attained independence on July 26, 1965. It became a republic in November, 1968.

Most of the people are seafarers. Coconuts, fruits and millet are the main crops. The chief occupation is fishing and production of processed fish is the main industry.

President and P.M.: Maumoon Abdul Gayoom.

MALI

Cap: Bamako; **Area:** 12,39,998 sq km; **Pop:** 78,25,000; **Lang:** French (official); **Rel:** Islam and Tribal; **Currency:** Mali Franc. US $ 1=MF 726.25.

Mali is a land-locked state in West Africa. It was proclaimed an independent republic in 1960.

The country is poor in natural resources. Only about 20 per cent of the land is cultivable. The main crops are rice, millet and groundnuts. Livestock-raising is important and the processing of hides and skins remains the only industry. There is extensive river-fishing and good export trade in dried and smoked fish.

President and P.M.: Moussa Traore.

MALTA

Cap: Valletta; **Area:** 316 sq km; **Pop:** 3,80,000; **Lang:** Maltese and English; **Rel:** Christian; **Currency:** Lira Malija. US $1=Lm 1.95.

Malta is an island in the central Mediterranean Sea, 58 miles from Sicily and about 180 miles from the African coast. This state also includes the adjoining islands of Gozo and Comino. Malta became an independent republic in 1964.

The rocky country has no natural resources. Textiles, footwear, rubber products and plastics are exported. Agricultural products include onions, potatoes and tomatoes. Tourism, however, remains the island's major industry.

President: Agatha Barbara. **P.M.:** Eddie Fenech Adami.

MAURITANIA

Cap: Nouakchott; **Area:** 10,30,700 sq km; **Pop:** 18,32,000; **Lang:** Arabic and French (official); **Rel:** Islam; **Currency:** Ouguiya. US $1=67.16 Ouguiya.

The Islamic Republic of Mauritania is on the Atlantic coast of the West African bulge.

Mauritania, a former French overseas terri-

tory, became autonomous in 1958 and fully independent in 1960.

The population is traditionally nomadic rearing cattle and sheep. Fishing is important. Important deposits of iron and copper have been sighted and are being exploited. Oil prospecting is going on.

President and P.M.: Lt. Col. Mohamed Khouna Ould Haydalla.

MAURITIUS

Cap: Port Louis; **Area:** 2040 sq km; **Pop:** 10,31,000; **Lang:** English, French and Hindustani; **Rel:** Hinduism, Christianity and Islam; **Currency:** Rupee. US $1=Rupees 16.84.

Mauritius lies about 500 miles east of Madagascar in the Indian Ocean.

It became an independent state on March 12, 1968.

The island is an extreme example of one-crop economy, sugarcane being the only crop that supports the economy. Molasses, tea and tobacco are exported. Tourism is a highly developed industry.

Head of State: Queen Elizebeth II. **Gov. Gen:** Sir Veera Swamy Ringadoo. **P.M.:** Aneerood Jugnauth.

Mission in India: High Commission of Mauritius, 5 Kautilya Marg, Chanakyapuri, New Delhi-110 021. Tel: 3011112.

MEXICO

Cap: Mexico City; **Area:** 19,72,547 sq km; **Pop:** 7,70,40,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peso. US$1=530 Pesos.

A federal republic of middle America, Mexico became an independent state in 1821.

Mexico is not well suited for agriculture so it is obliged to import food. The important agricultural products are maize, rice, wheat and sugar. Sea fishing is also important as an occupation. Mexico is the world's leading producer of silver, sulphur and fluorite. Other minerals include coal, zinc, lead, manganese, bauxite and uranium. In recent years, Mexico has become one of the main producers and exporters of petroleum.

President: Miguel de la Madrid Hurtado.

Mission in India: Embassy of Mexico, 10 Jor Bagh, New Delhi-110 003. Tel: 697991.

MONACO

Cap: Monaco; **Area:** 1.95 sq km; **Pop:** 27,063; **Lang:** French & Monegasque; **Rel:** Christian; **Currency:** Franc.

Monaco is a sovereign principality on France's south-eastern Mediterranean coast.

The principality is a series of connected towns–Monaco-Ville, La Condamine, Fontvieille and Monte Carlo with its casinos, opera house, grand hotels, shops and villas.

Monaco is a fashionable pleasure resort visited by thousands of tourists every year. Its main attractions are the casinos and its international motor sports–the Monte Carlo Rally and the Monaco Grand Prix. Tourism, gambling, taxes and tobacco monopoly are its main sources of income.

There are a number of light industries.

Head of State: Prince Rainier III.

Mission in India: Consulate General of Monaco, 114, Sundar Nagar, New Delhi-110 003. Tel: 623193.

MONGOLIA

Cap: Ulan Bator; **Area:** 15,65,000 sq km; **Pop:** 18,51,000; **Lang:** Mongolian; **Rel:** Buddhism and Lamaism; **Currency:** Tugrik. US$1=3.36 Tugrik.

The Mongolian People's Republic lies in Central Asia with the Soviet Union to the north and China to the south, east and west. It became an independent state in 1921.

Livestock-raising is the principal occupation and comprises horses, oxen, sheep, goats and camels. The herdsmen are organised in collectives. State farms, of which there were 49 in 1980, practise large-scale agriculture. Minerals include coal, flourspar, tungsten, tin and copper.

Chairman of the Presidium: Dr. Jambyn Batmunkh. **P.M.:** D. Sodnom.

Mission in India: Embassy of the Mongolian People's Republic, 34, Archbishop Makarios Marg, New Delhi-110 003. Tel: 618921.

MONTSERRAT

Cap: Plymouth; **Area:** 102 sq km; **Pop:** 12,074; **Lang:** English and Patois; **Rel:** Christian; **Currency:** Dollar.

Montserrat, like Antigua, is one of

Leeward Islands. Its population is of mixed European-Negro origin. Europeans proper form a minority. Agriculture is the mainstay of the people. Sea island cotton and vegetables like tomatoes form the main exports.

It is a British Associate State with full internal autonomy.

Gov: A.C. Watson; **Chief Minister:** Dr. J.A. Osborne.

MOROCCO

Cap: Rabat; **Area:** 8,00,000 sq km; **Pop:** 2,28,48,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Ditham. US $1=9.95 DH.

The Kingdom of Morocco, which is a constitutional, Monarchy, is situated at the extreme northwest of Africa. The Atlas mountains stretch across Morocco.

Morocco recovered its political independence from France on March 2, 1956, and gained control over the Northern Spanish zones in 1958.

Primarily an agricultural country, Morocco produces cereals, including barley, wheat and corn. Vineyards are abundant and dates form a regular crop. Livestock raising is important and fishing is well-developed. The most important mineral extracted is phosphate, of which Morocco remains a world supplier. Other minerals are iron ore, coal, lead and manganese

Head of State: King Hassan II.

Saharan Republic

The Sahraui Arab Democratic Republic (SADR) set up by the Polisario in Western Sahara is a territory that came under Morocco's control after Spain withdrew from there.

Algeria actively supported the Polisario-led struggle for its independence.

The new Republic is headed by President Mohammed Abde Aziz (who is also Secretary General of the Polisario Front) and P.M. Mohammed Lamine.

India accorded recognition to the new government on Oct. 1, 1985.

As a sequel Morocco broke diplomatic relations with India.

Mission in India: Embassy of Morocco, 33 Golf Links, New Delhi-110 003.

MOZAMBIQUE

Cap: Maputo; 783,030 sq km; **Pop:** 13,693,000; **Lang:** Portuguese and Bantu; **Rel:** Islam and Christianity; **Currency:** Metical (Plural: Meticals). US $1=44.87 Meticals.

Mozambique is the old Portuguese East Africa. Mozambique Channel of the Indian Ocean bounds it in the east. The majority of the population belongs to the *Bantu* tribe.

The economy is based on agriculture. The major cash crops are cashewnuts, sugar, cotton, and sisal. Maize, bananas, rice and coconuts are also grown. Considerable mineral resources exist although only coal, diamonds and bauxite are now exploited. Mozambique has two-thirds of the world's known reserves of tantalite and is the second largest producer of beryl.

President: Joaquim Chissano; **P.M.:** Mario da Graca Machungo.

NAMIBIA

Cap: Windhoek; **Area:** 824,292 sq km; **Pop:** 1,507,000; **Lang:** English & Afrikaans; **Rel:** Christian and Tribal; **Currency:** Rand.

Namibia, formerly known as South West Africa, lies on the Atlantic coast of Africa.

The biggest population group is *the Ovambos.*

Diamonds are Namibia's most valuable economic asset followed by copper, zinc, lead, germanium and manganese. Stock- breeding is important; cattle, sheep and goats abound. Fishing is a supplementary source of food and income.

South Africa is a harbouring a puppet govt. in Namibia inspite of international opinion against it expressed by repeated UN resolutions.

NAURU

Cap: Nauru; **Area:** 20.9 sq km; **Pop:** 8421; **Lang:** English and Nauruan; **Rel:** Christian; **Currency:** Dollar.

Nauru is a small island in the central Pacific. It is an oval-shaped coral island of approximately 12 miles in circumference, surrounded by a reef which is exposed at low tide. Nauru became an independent republic on Jan.31, 1968.

About four-fifths of the area of Nauru is osphate-bearing rock. Phosphates form the ly export.

esident: Kennan Adeang.

Mission in India: Consulate General of the public of Nauru, C-5/4, Safdarjung Develop-ent Area, New Delhi-110 016. Tel: 667977.

NEPAL

ip: Kathmandu; **Area:** 147,141 sq km; **Pop:** ,107,000; **Lang:** Nepali; **Rel:** Hinduism and ıddhism; **Currency:** Rupee. US$1=19 ıpees.

Nepal is a kingdom in the southern slope of e Himalayas, situated between India and ına.

Nepal is rich in forest wealth and quartz eposits. The principal exports are jute, rice, ttle, hides, wheat and herbal drugs.

ing: Birendra Bir Bikram Shah Dev. **P.M:** arich Mansingh Shrestha.

ission in India: Royal Nepalese Embassy, arakhamba Road, New Delhi- 110 001. Tel: 31484.

Consulate: 19, Woodlands, Sterndale Road, alcutta-700 027. Tel: 45-2024.

NETHERLANDS

ap: Amsterdam, Seat of Govt: The Hague; **rea:** 41,160 sq km; **Pop:** 144,456,00 ; **Lang:**)utch; **Rel:** Christian; **Currency:** Guilder. S $1=2.50 Guilders.

The Kingdom of the Netherlands comprises f the Netherlands and Antilles. The country is lainland with an average height of 37 ft. bove sea-level. Much of the land, however, is elow sea-level and is protected by dykes, vhich extend for some 1500 miles.

Agriculture has been mechanised and de-eloped. Foodstuffs form the largest industrial ector. Dairy products account for one-quarter f exports. Other major industries include hemicals, metallurgy, machinery and electric-l goods. Amsterdam is famous as a world entre for diamonds, precious metals and art reasures.

Head of State: Queen Beatrix. **P.M.:** R. F. M. Libbers.

Mission in India: Embassy of Netherlands, 6/50 F, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 609571.

Hon. Consul, Chordia Mansion, 739, Annasa-lai, Madras-600 002. Tel: 811566.

NEW ZEALAND

Cap: Wellington; **Area:** 269,057 sq km; **Pop:** 3,264,000; **Lang:** English and Maori dialect; **Rel:** Christian; **Currency:** Dollar US $1=0.56 NZ$.

New Zealand, lying in the South Pacific Ocean with Tasman Sea on the west, consists of two large islands, North island and South island and numerous small islands. It gained dominion status in 1907.

Primary industries are dairying, meat and wool. The major crops are wheat, oats and barley. Minerals include coal and gold. Pulp and paper industry is highly developed. Iron, steel and aluminium are new industries.

Head of State: Queen Elizabeth II, **Gov. Gen:** Sir Paul Reeves, **P.M:** David R. Lange.

Mission in India: High Commission of New Zealand, 25 Golf Links, New Delhi- 110 003. Tel: 697296.

NICARAGUA

Cap: Managua; **Area:** 130,000 sq km; **Pop:** 3,162,000; **Lang:** Spanish and English; **Rel:** Christian; **Currency:** Cordoba. US $1=10 Cordobas.

The republic of Nicaragua is located in the heart of Central America. It became an inde-pendent state in 1838. The Somoza dynasty ruled Nicaragua from 1933 to 1979.

The third Somoza was overthrown by armed revolution led by Sandinista National Liberation Front, which emerged as the lead-ing political force in the election held in 1984. But a civil war is being waged aganist the present Ortega Govt. by former members of Nicaraguan National Guard (Somoastan), operating from Honduras with US support.

Agriculture is the principal source of nation-al income. The most important agricultural products are cotton, coffee and sugar-cane. Chief industries are matches, leather, beer and plastic goods. Gold, copper, silver, lead and zinc are found.

President: Daniel Saavedra Ortega.

Mission in India: Embassy of the Republic of Nicaragua, C-5/29, Safdarjung Development Area, New Delhi-110 016. T[illegible]7109.

NIGER

Cap: Niamey; **Area:** 1,267,000 sq km; **Pop:** 5,940,000; **Lang:** French and Hausa; **Rel:** Islam and Tribal; **Currency:** Franc CFA, French F1=50 F CFA.

The Republic of Niger lies in the heart of West Africa.

Formerly part of French West Africa, Niger became fully independent in 1970.

It is an agricultural country with very limited resources. The principal crops are peanuts and cotton. Cattle-breeding is the next most important occupation of the people. Uranium has been discovered and mining is going on.

President: Maj. Gen. Seyni Kountche. **P.M:** Hamid Algabid.

Mission in India: Hon. Consul, 119 Broadway, Madras-600 001. Tel: 22200.

NIGERIA

Cap: Lagos (Federal); **Area:** 923,768 sq km; **Pop:** 92,037,000; **Lang:** English, Hausa, Ibo and Yoruba; **Rel:** Islam, Christianity and Tribal; **Currency:** Naira. US $1=0.86 Naira.

The Federation of Nigeria is a West African coastal state within the Gulf of Guinea. River Niger flows through south western Nigeria towards the south where it is joined by its chief tributary Benue River, and empties into the Gulf of Guinea, creating an extensive swampy delta.

Nigeria became an independent state in 1960 and a republic within the Commonwealth in Oct. 1963.

The chief agricultural products are cocoa, plam oil, palm kernels, cotton, rubber, peanuts and skins. Tin, lead, columbite, coal and iron ore represent the chief minerals. There is extensive exploitation of the forest for various timbers. Crude oil exports have become important since 1970. Industry is diversified, beer, cement, cigarettes and aluminium products being the main items.

Head of State and Govt: Maj. Gen: Ibrahim Babangida.

Mission in India: High Commission of Nigeria, 21 Palam Marg, Vasant Vihar, New Delhi- 110 057. Tel: 670405.

NORWAY

Cap: Oslo; **Area:** 323,895 sq km; **Pop:** 4,140,000; **Lang:** Norwegian; **Rel:** Christian **Currency:** Krone. US $1=7.2 Krone.

Norway extends along the western part o the Scandinavian Peninsula from Skagerral which separates it from Denmark to Nord Cape in the Arctic Ocean, where it meet Finland and Soviet Russia.

Norway is known as the *Land of th Midnight Sun,* because in North Cape area, th sun does not set from middle May until th end of July, nor does it rise above the horizo from the end of November to the end o January.

The important agricultural products ar barley, oats, rye and potatoes. Fishing is major occupation with immense quantities o cod, herring, whale, tuna, seal, mackerel an salmon. Forests provide raw material for man industries. Mining is an important industry There is very little coal but plenty of hydro electric power to run big factories. Th principal manufactures are food products machinery and metal work, wood, paper an pulp, aluminium and electro-chemical pro ducts.

Head of State: King Olav V. **P.M:** Gr Harlem Brundtland.

Mission in India: Embassy of Norway, Shan tipath, Chanakyapuri, New Delhi- 110 021. Tel 605982.

Consulate: Bombay: Nauroji Mansion, 31 Nathelal Parekh Marg.

Calcutta: Calland House, 6th Floor, Chitrakoot, 230 Bose Road, Calcutta.

Madras: 23, VI Main Road, Raja Annamalaipuram, Madras-600 028. Tel: 20561.

OMAN

Cap: Muscat; **Area:** 300,000 sq km; **Pop:** 1,500,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Rial Omani (= 1000 Baiza). US $1=348 Baiza.

The Sultanate of Oman, formerly Muscat & Oman, occupies the south eastern part of the Arabian Peninsula. Its coastline stretches along the Arabian Sea, the Gulf of Oman and the Persian Gulf. Oman adopted the present name in 1970.

Where there is water, the land is very fertile. The Batina coastal plain is famous for its dates, fruits and grains. Oil, however, is the ace of the economoy.

Head of State & Govt: Sultan Oabus bin Said.

Mission in India: Embassy of Oman, 16, Palam Marg, Vasant Vihar, New Delhi- 110 057. Tel: 670215.

PAKISTAN

Cap: Islamabad; **Area:** 796,095 sq km; **Pop:** 98,971,000; **Lang:** Urdu; **Rel:** Islam; **Currency:** Rupee, US$1=16.03 Rupees.

The Islamic Republic of Pakistan, now confined to West Pakistan, originally came into existence in 1947, following the partition of India into two states, India and Pakistan. Its eastern wing, formerly called East Pakistan, fell apart in 1971. Pakistan is bordered by Afghanistan, Iran, India and China.

Agriculture is the mainstay of Pakistani economy. Wheat, sugarcane, cotton and rice are the major crops. Industries are being developed with indigenous resources and foreign knowhow and assistance. A wide range of minerals like graphite and limestone remain to be exploited.

President: Gen. Mohammed Zia-Ul-Haq: **PM:** Mohammed Khan Junejo.

Mission in India: Embassy of Pakistan, 2/50-G, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600601.

PANAMA

Cap: Panama City; **Area:** 77,082 sq km: **Pop:** 2,134,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Balboa, US$1=1Balboa.

Panama is a narrow strip of territory at the southern end of the Isthmus separating North and South America. At its narrowest point, 50 miles wide, the Atlantic and the Pacific Oceans are united by the famous Panama Canal. It declared itself independent in 1903.

Control over the Panama Canal, linking the Atlantic and the Pacific Oceans, had long been a bone of contention between the US and Panama. In 1978, it was agreed that the US will relinquish all its claims in favour of Panama at the close of the century.

The soil is extremely fertile but nearly one-half of the land is uncultivated. The chief crops are bananas, coffee and cereals. Industry is mainly centred around sugar and alcoholic beverages. Shrimp fishing is important. There are excellent timber resources, notably mahogany.

President: Eric Arturo Delvalle.

Mission in India: Embassy of Panama, D-129, Panch Sheel Enclave, New Delhi-110 017. Tel: 643-8620.

Consulate: Bombay Maker Arcade, Cuffee Parade, 53, Ground Floor, Bombay-400 005. Tel: 21-5585.

PAPUA NEW GUINEA

Cap: Port Moresby; **Area:** 462,840 sq km; **Pop:** 3,601,000; **Lang:** Melanesian and Papuan; **Rel:** Christian and Tribal; **Currency:** Kina. US$1=K 1.04.

Papua New Guinea comprises the eastern section of the island of New Guinea and adjacent islands.

It is a region of lofty mountains and swampy plains. The surrounding islands are largely of volcanic or coral origin.

The population consists of dark-skinned Melanesians, who live mostly along the coasts and woolly-haired Papuans who inhabit the interior.

Agriculture occupies the majority of the population, most of whom are subsistence farmers. Sago, yams, taro, manioc, and sweet potatoes are the main food crops. Cash crops include coconuts, cocoa, coffee and rubber. The country has large deposits of various minerals. Gold and copper are being mined. Oil and natural gas have also been found.

Gov. Gen: Sir Kingford Dibela; **PM:** Palias Wingti.

PARAGUAY

Cap: Asuncion; **Area:** 406,752 sq km; **Pop:** 3,576,000; **Lang:** Spanish, Guarani; **Rel:** Christian; **Currency:** Guarani, US$1=240 Guaranies.

Paraguay is one of the landlocked countries of South America surrounded by Bolivia, Brazil and Argentina. The Paraguay river is navigable for some 1800 miles and steamers come upto Asuncion which is the chief port of the state. This makes up for lack of coastline or sea harbours. It became independent in 1811.

About 75 per cent of the population is engaged in agriculture and allied pursuits with cattle breeding as an important oc[illegible]n.

aruzelski. **P.M.:** Zbigniew Messner.

Mission in India: Embassy of Poland, 50 M, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608321.

Consulate: Bombay – Manavi Aparments, 36 B.G. Kher Marg.

Calcutta: 3-B, Albert Road, Calcutta-700 017. Tel: 44-7144.

PORTUGAL

Cap: Lisbon; **Area:** 92,072 sq km; **Pop:** 1,00,08,000; **Lang:** Portuguese; **Rel:** Christian; **Currency:** Escudo. US $1=188 Escudos.

Portugal is a small rectangular territory in the southwest corner of the Iberian Peninsula.

Portugal was an independent kingdom from the 12th century. It became a republic in 1910.

Nineteen per cent of the country is forest, where pine, oak, chestnut and cork grow in abundance. Vineyards are found everywhere and wines, olive oil and fruits are produced in large quantities. The major minerals are coal, copper, kaolin, wolframite, lithium and titanium. Textiles, chemicals, paper and glassware are the principal manufactures. The main exports are wine, canned sardines, tuna, anchovies, resins and cork. Portugal is one of the leading countries in the world which produce cork.

President: Dr. Mario Soares. **P.M.:** Anibal Cavaco Silvy.

Mission in India: Embassy of Portugal, A-24 West End Colony, New Delhi-110 021. Tel: 674596.

PUERTO RICO

Cap: San Juan; **Area:** 8891 sq km; **Pop:** 34,04,000; **Lang:** Spanish and English; **Rel:** Christian; **Currency:** Dollar.

The island of Puerto Rico lies 50 miles east of Hispaniola (Haiti and Dominican Republics) in the outer Caribbean. In 1952, it ceased to be a colonial possession and became a Free Commonwealth. It has close association with U.S. People have U.S. citizenship with no voting rights. There is a movement for full independence.

From a purely agricultural country, Puerto Rico is fast changing to an industrial economy. The main crops are sugar, tobacco and coffee. Industries include textiles, clothing, cigars, alcohol, chemicals and household appliances. Tourism is an important source of revenue.

QATAR

Cap: Doha; **Area:** 11,000 sq km; **Pop:** 2,91,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Riyal. US $1=3.64 Riyals.

Qatar is a 100-mile-long tongue of land jutting into the Persian (Arabian) Gulf. It is surrounded almost on three sides by the Persian Gulf. Saudi Arabia lies to the south.

It became independent in 1971 when Britain withdrew from the Persian Gulf. Qatar is an absolute monarchy.

Most of the population live in and around Doha, the capital. Immigrants from Pakistan, Iran and Oman now outnumber the native Qataris. Today the oil industry provides over 90% of the national income but employs only less than 5% of the population. Qatar is now connected by road to the rest of Arabia and by air to the rest of the world.

Amir: Sheikh Khalifah bin Hamad al Thani. **P.M.:** Heir Apparent Sheikh Khalifah bin Hamad al Thani.

Mission in India: Embassy of Qatar, A-3 West End Colony, New Delhi-110 021. Tel: 673745.

Consulate: Bombay – Bajaj Bhavan, Nariman Point.

ROMANIA

Cap: Bucharest; **Area:** 2,37,500 sq km; **Pop:** 2,28,97,000; **Lang:** Romanian; **Rel:** Christian; **Currency:** Leu plural Lei. US $1=11 Lei.

Romania, lies in the south east of the central part of Europe.

The Black Sea shore has a length of 245 km. Modern Romania was formed in 1859. Industry now dominates Romania's economy.

Heavy industries are predominated by drilling rigs for oil, equipments for oil refineries, petrochemical industry, cement, thermo and hydro electric power, diesel and electric locomotives of high capacity, engineering and consumer goods, etc.

Romanian agriculture recorded profound changes during the last three decades. The changes began with the land reform [illegible]5. The small and middle-sized peasant [illegible] were converted into co-operatives which started in 1949 [illegible]

Land, which is the common property of the co-operative farmers, is tilled in common.

The exports are mostly made up of machines and equipment, chemical products, chemicals, fertilizers and industrial consumer goods.

President: Nicolae Ceausescu. **P.M.:** Constantin Dascalescu.

Mission in India: Embassy of Romania 52/A Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670700.

RWANDA

Cap: Kigali; **Area:** 26,338 sq km.; **Pop:** 59,03,000; **Lang:** French and Kinyarwanda; **Rel:** Tribal and Islam; **Currency:** Rwanda Franc. US $1=108.18 RF.

Rwanda is a republic in central eastern Africa, just below the equator. The population of Rwanda includes Watutsi, Bahutu and Batwa tribes.

The Republic of Rwanda, formerly part of the Belgian Trusteeship of Ruanda-Urundi in east central Africa, became independent in 1962.

The economy is agricultural and remains mainly at the subsistence level. Coffee, cotton and pyrethrum are the principal crops. Minerals include tin ore, tungsten, tantalite, and beryl. Industry is undeveloped. Livestock raising is wide-spread and hides and skins are exported.

President: Maj-Gen Juvenal Habyarimana.

SAN MARINO

Cap: San Marino; **Area:** 61 sq km; **Pop:** 50,000; **Lang:** Italian; **Rel:** Christian; **Currency:** Lira.

The republic of San Marino is situated on the slope of Mount Titano in the Apennines on the Adriatic side at the tip of Italy.

It claims to be the oldest state in Europe, having been founded in A.D. 301.

The principal products are wheat, wine and olives. Industries include textiles, ceramics, cement, paper, leather and woollen goods. Tourism is the major source of revenue.

Captains-Regent: Marino Venturini 111 & Aristo Maiani I.

Mission in India: Consulate General of San Marino, 15, Aurangzeb Road, New Delhi-110 011. Tel: 6411991.

SAO TOME & PRINCIPE

Cap: Sao Tome; **Area:** 964 sq km; **Pop:** 102,000; **Lang:** Portuguese, native dialects, **Rel:** Christian; **Currency:** Dobra. US$1=46.66 Dobra.

These two islands, with a few other nearby islets, lie in the Gulf of Guinea, about 125 miles from Gabon. Situated north of the equator, these islands have hot steaming weather in the summer, but plenty of rainfall. The largest of the islands is Sao Tome, on which stands *Sao Tome,* the capital and chief port.

These islands were under the Portuguese until 1975 when they became independent.

Today, the country's economy is geared almost exclusively to the production of agricultural export commodities, especially cocoa. Sao Tome has to import most of its food. There is virtually no manufacturing industry except soap, soft drinks, etc.

President and PM: Manuel Pinto da Costa.

SAUDI ARABIA

Cap: Riyadh (Royal) and Jeddah (Administrative); **Area:** 2,149,690 sq km; **Pop:** 10,824,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Rial. US$1=3.60 Rials.

Saudi Arabia occupies nearly four-fifths of the Arabian peninsula.

In the province of Hejaz are Medina, where Mohammed the Prophet was buried on June 7, 632 and Mecca the birthplace of the Prophet. There is a great mosque in Mecca which shelters the sacred shrine, the Kaaba. On one side of the Kaaba is the black stone believed to have been given to Abraham by Archangel Gabriel. This shrine is the place of pilgrimage for Muslims the world over.

Saudi Arabia is an absolute monarchy, with no parliament.

Saudi Arabia has great oil wealth and is the foremost exporter of petroleum products today. The income from oil forms the major source of public revenue. All the same, Saudi Arabia remains an agricultural country whose main products are dates, wheat, barley, fruit, hides and wool.

Head of State & Govt: King Fahd Ibn Abdel Aziz al Said.

Mission in India: Embassy of Saudi Arabia, S-347, Panchshila Park, New Delhi-110 017. Tel: 665419.

Consulate: Jolly Chamber No 11, 12th Floor, Nariman Point, Bombay.

SENEGAL

Cap: Dakar; **Area:** 196,162 sq km; **Pop:** 6,352,000; **Lang:** French and native tongues; **Rel:** Islam and Tribal; **Currency:** Franc CFA. French Fl=50 FCFA.

Senegal lies on the West African bulge. In the southern part of the country, Gambia forms a narrow enclave extending some 200 miles into the interior.

Formerly a French colony, Senegal became a self-governing republic in 1960.

Agriculture and livestock rearing are the chief occupations. There are large deposits of iron ore and phosphate. Developing industries include food processing, chemicals and textiles.

President: Abdou Diouf.

SEYCHELLES

Cap: Victoria; **Area:** 308 sq km; **Pop:** 64,718; **Lang:** Creole and French; **Rel:** Christian; **Currency:** Rupee. US $1=7.62 Rupees.

Seychelles forms a group of lovely islands, in western Indian Ocean. The principal island is Mahe on which the capital Victoria is situated. The group consists of some 92 islands, of which 45 are coralline and the rest granitic. Seychelles became an independent republic in 1976.

Seychelles was entirely uninhabited when the French established settlements there in 1770.

The population of Seychelles is of mixed origin, a unique blend of European, African, Indian and Chinese races. The Seychelles have evolved a mixed language, which may be called Creole. Coconuts take the pride of place among agricultural products. Cinnamon is the next major crop and export. Other crops like tea and lime are also grown. Fishing is another major occupation. Tuna, mullet, mackerel, sardines and shell fish abound in the offshore waters.

President: France Albert Rene.

SIERRA LEONE

Cap: Freetown; **Area:** 71.740 sq km; **Pop:** 3,536,000; **Lang:** English and Tribal; **Rel:** Islam, Christianity and Tribal; **Currency:** Leone. US $1=6 Leones.

Sierra Leone (meaning mountain of the lion) was the name originally given to this area by Portuguese sailors mainly on account of the thunder-storms around its coastal peaks. It lies on the West African bulge, between Guinea and Liberia.

Formerly under British rule, Sierra Leone became independent in 1961.

The economy is based on agriculture and mining. Principal products are industrial diamonds, iron ore, bauxite, kola nuts, palm kernel, cocoa and coffee.

President: Maj. Gen. Joseph Saidu Momoh.

SINGAPORE

Cap: Singapore city; **Area:** 616.3 sq km; **Pop:** 2,540,000; **Lang:** Malay, Chinese, Tamil and English; **Rel:** Buddhism, Hinduism, Islam, Christianity and Taoism; **Currency:** Dollar. US $1=2.28 Sing. Dollars.

Singapore is a small island with some 54 outlying islets situated at the southern tip of the Malay Peninsula, to which it is linked by a causeway. The island is about 41.84 km in length and 22.53 km in breadth.

The population of Singapore is composite. The Chinese comprise 76.5% and Malays 14.8% and Indians 6.4%.

In August 1965 Singapore became an independent Republic.

The country is an entrepot for Malaysia and other southeast Asian states. The chief exports are rubber and tin. Industries include tin smelting, rubber goods, lumber working and ship-building, textiles and electronics.

President: Wee Kim Wee, **P.M:** Lee Kuan Yew.

Mission in India High Commission of Singapore, E6, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 604162.

SOLOMON ISLANDS

Cap: Honiara; **Area:** 29,758 sq km; **Pop:** 258,193; **Lang:** English and Pidgin English; **Rel:** Christian; **Currency:** Solomon Islands Dollar (SI$) US $1=1.44 SI$.

The Solomon Islands are Pacific and lie to the

Originally a British Protectorate, it achieved independence in 1978.

The population is predominantly Melanesian. Copra is the main cash crop and rice the chief food crop. Fish is a vital element in food and an export item.

Gov. Gen: Sir Baddeley Devisi. **P.M:** Sir Peter Kenilorea.

SOMALIA

Cap: Mogadishu; **Area:** 637,657 sq km; **Pop:** 7.5 million; **Lang:** Somalia and Arabic; **Rel:** Islam; **Currency:** Somali Shilling. US $1=36.60 Som. Shilling.

A republic on the east coast of Africa, Somali Democratic Republic was formed by the union of the former Italian Somaliland and the British Somaliland on July 1, 1960.

Somalia is an agricultural country. But out of 8.2 m hectares of fertile land only 7 m hectares are cultivated. Has 40.1 m livestock.

President: Maj. Gen. Mohammed Ziyad Barre.

Mission in India: Embassy of Somalia Democratic Republic, 12-A, Golf Links, New Delhi- 110 003. Tel: 619559.

SOUTH AFRICA

Cap: Pretoria; **Area:** 1,221,037 sq km; **Pop:** 31,586,000; **Lang:** Afrikaans and English; **Rel:** Christian; **Currency:** Rand. US $1=2.06 Rands.

The Republic of South Africa lies at the southern tip of the continent of Africa. S. Africa includes the original white colonies of the Cape of Good Hope, Natal, Transvaal and Orange Free State. Formerly known as the Union of South Africa, it became a republic after leaving the Commonwealth in March 1960.

The major agricultural products are cotton, wheat, tobacco, sugarcane and citrus fruits. With vast mineral resources, South Africa is the biggest gold and diamond producing country in the world and one of the biggest in uranium. About 47 per cent of the world's total production of gold is from South Africa. Other minerals include coal, copper, tin, manganese, iron, lead and chrome. Manufacturing industries include heavy engineering, chemicals, textiles and food processing.

The country follows a policy of *Apartheid* the separate development of racial groups. Under the Bantu Home Lands Constitution Act of 1971, self-government has been given to Transkei, Bophuthatswana, Venda and Ciskei.

No country in the world has recognised these states as independent entities. Nevertheless the show goes on.

President: Marais Viljoen. **P.M:** Pieter Wilhelm Botha.

SPAIN

Cap: Madrid; **Area:** 5,04,750 sq km; **Pop:** 38,717,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peseta. US$1=190 Pesetas.

With the discovery of America for Spain by Columbus in 1492, Spain became a great colonial empire. After the defeat of the Spanish Armada by England in 1588, Spain shrunk into a minor continental power. In 1939, it passed under the dictatorship of Gen. Franco. On Franco's death in 1975 Spain became a constitutional monarchy.

Traditionally an agricultural country, Spain's main products are cereals, vegetables and fruits. Industries include chemicals, machine tools and ship-building.

Head of State: King Juan Carlos; **P.M.:** Felipe Gonzales Marquez.

Mission in India: Embassy of Spain, 12 Prithviraj Road, New Delhi-110 011. Tel: 3015892.

Consulates: Bombay – 6, K-Dubash Marg.

Calcutta: No.1, Taratolla Road, Garden Reach, Calcutta-700 024. Tel: 45-5771.

Madras: 'Lovedale' 8, Nimmo Road, San Thome. Tele: 72008.

SRI LANKA

Cap: Colombo (Sri Jayewardenepura); **Area:** 65,610 sq km; **Pop:** 16,076,000; **Lang:** Sinhalese and Tamil; **Rel:** Buddhism, Hinduism, Islam and Christianity; **Currency:** Rupee. US$1=27.45 Rupees.

Sri Lanka is an island separated from India by the shallow Palk Strait. It is bounded on the west by the Palk Strait and the Gulf of Mannar, on the north and east by the Bay of Bengal and on the south by the Indian Ocean.

Sri Lanka became independent in 1948 as a member of the Commonwealth. 1985 saw bloody confrontation between northern Tamil-

ans seeking a separate province and govern-ıent.

Sri Lanka's major products are agricultural– a, rubber and coconuts. The commercially nportant mineral is graphite. There are eposits of iron ore, monazite, ilmenite, mestone, clay and kaolin. Industries include ement, textiles and fertilizers. Sri Lanka has mbarked on a programme of economic econstruction in which the harnessing of the lahawali river for irrigation and hydel power, house construction programme, an invest-ıent promotion zone, etc. are important atures.

President: J. R. Jayawardene. **P.M.:** Rana-nghe Premadasa.

Mission in India: High Commission of Sri anka, 27 Kautilya Marg, Chanakyapuri, New elhi-110 021. Tel: 370201.

onsulate: Bombay – Sri Lanka Home, 34 lomi Modi Street.

Dy. High Commissioner, Madras: 9-D Nawab labibullah Ave, Anderson Road.

ST. KITTS-NEVIS

ap: Basseterre; **Area:** 269 sq km; **Pop:** 4,109; **Lang:** English and Patois; **Rel:** Christ-in; **Currency:** Dollar.

St. Christopher (Kitts)-Nevis is two islands in ast Caribbean separated by a narrow channel miles wide. The islands were given the status f an Associate State with Britain in 1967 and ecame independent on Sept. 18, 1983. At that me Anguilla was part of St. Kitts-Nevis. The nguillans revolted against this arrangement nd Anguilla was separated. (see *Dependen-les* infra).

The population is mostly black. The eco-omy is agricultural, sea island cotton and ugar cane being the principal crops.

Gov. Gen: Sir Clement Athelston Arrindell. **.M.:** Dr. Kennedy Alphonse Simmonds.

ST. LUCIA

ap: Castries; **Area:** 616 sq km; **Pop:** 1,26,800; **ang:** English and French patois; **Rel:** Christ-in; **Currency:** Dollar.

St. Lucia, the second largest island in the Windward group, lies to the south of Martini-ue and to the north of St. Vincent. It became ndependent on Feb. 22, 1979.

The economy is agricultural, copra, coconut oil, bananas and cocoa being the main export items. Manufactures include plastics, garments and beer.

Gov. Gen.: Sir Allen Lewis. **P.M.:** John George Melvin Compton.

ST. VINCENT

Cap: Kingstown; **Area:** 389 sq km; **Pop:** 1,23,000; **Lang:** English and French Patois; **Rel:** Christian; **Currency:** Dollar.

One of the Windward Islands, west of Barbados, St. Vincent became a British Associate State in 1969 and achieved independence on Oct. 27, 1979.

The population is of mixed origin– European-Negro and Carib-Indian. Bananas, arrow-root, copra, sea island cotton and spices are the main exports. Tourism is important.

Gov. Gen.: Sir Sydney Gun-Murro. **P.M.:** James Fitz Allen Mitchell.

SUDAN

Cap: Khartoum; **Area:** 25,05,813 sq km; **Pop:** 20,945,000; **Lang:** Arabic and English; **Rel:** Islam, Christianity and Tribal; **Currency:** Pound. US $1=£S2.50.

Sudan is a republic of north east Africa. The White Nile flows through the middle of the country and joins the Blue Nile at Khartoum. The Sudanese population consists of Arabs, Negroes and Nubians of mixed Arab and Negro blood. Sudan became an independent state in 1885.

The main agricultural crop sorghum is the country's staple food. Other products include longstaple cotton, sesame, peanuts, dates, hides and skins, chillies, beans and corn. Sudan is the world's principal source of gum Arabic. Rice, peanuts, coffee, sugar cane and tobacco are expanding items of agricultural production. Sudan's mineral wealth includes copper, gold, iron, manganese and magnesite. Oil has also been found.

Head of Sovereignty Council: Ahmed el Mirghani; **P.M.:** Sadiq el-Mehdi.

Mission in India: Embassy of Sudan, M14, South Extension 11, New Delhi-110 049. Tel: 660434.

SURINAM

Cap: Paramaribo; **Area:** 1,63,265 **Pop:**

352,000; **Lang:** Dutch and English; **Rel:** Islam and Christianity; **Currency:** Guilder *US $1=1.78 Guilders.*

Surinam, formerly Dutch Guiana, lies on the north east coast of South America. It became independent in 1975.

The population comprises a medley of ethnic strains–Negroes, Chinese, East Indians and Indonesians. Mulattoes (of mixed European and East Indian parentage), Amer-Indians and Europeans form 40 per cent of the population.

Much of the land is given to rice cultivation. The country is rich in minerals. It is the second biggest producer of bauxite in the world. Bauxite, alumina and aluminium constitute nearly 90 per cent of the exports.

Chairman, National Military Council: Lt. Col. Deysi Bouterse. **P.M.:** Henk Chin A Sen.

SWAZILAND

Cap: Mbabane; **Area:** 17,363 sq km; **Pop:** 630,000 **Lang:** English and si-Swati; **Rel:** Christian and Tribal. **Currency:** Emalangeui. US $1 = 2.06 Emalangeui.

Swaziland is surrounded almost entirely by South Africa. Mozambique to the east is its only other neighbour.

Swaziland, formerly a British protectorate, attained independence on Sept. 6, 1968.

Sugar is the principal item in the economy, with citrus fruits, cotton, rice and maize, coming next. But the main wealth of the Swazis is cattle. There are considerable mineral reserves, especially, asbestos, iron and coal.

Head of State: *King Mswati III* Sofia Dlamini. **P.M.:** Sotia Dlamini.

SWEDEN

Cap: Stockholm; **Area:** 449,793 sq km; **Pop:** 82,84,000; **Lang:** Swedish; **Rel:** Christian; **Currency:** *Krona. US$1=9.69 Krona.*

Sweden is the largest of the Nordic countries and in terms of area, the fourth largest country in Europe. To the west, the Scandinavian mountain range divides Sweden from Norway. To the northeast, a shorter range separates Sweden from Finland. Otherwise, Sweden is surrounded by water– Baltic Sea and the North Sea. Sweden has been a constitutional monarchy since 1434.

Sweden has rich natural supplies of coniferous forest, water power, iron ore, uranium and other minerals but lacks significant oil and coal deposits.

The country is highly industrialised. Today about 40 per cent of the country's industrial production is exported. Swedish steel is especially reputed for tool making. Sweden is one of the greatest producers of wood pulp, paper and lumber.

Head of State: King Carl XVI Gustav. **P.M.:** Ingvar Carlsson.

Mission in India: Embassy of Sweden, Nyay Marg, Chanakyapuri, New Delhi-110 021. Tel 604961.

Consulates: Bombay – Indian Mercantile Chambers, Nicol Road, Ballard Estate.

Calcutta: C/o. M/s. Flakt India Ltd., Mahohta la, Jal Khuna, W. Bengal.

Madras: Hon. Consul, 6, Cathedral Road Madras-600 086.

SWITZERLAND

Cap: Berne; **Area:** 41,293 sq km; **Pop** 65,05,000; **Lang:** German, French, Italian an Romansch; **Rel:** Christian; **Currency:** Fran US $1=1.85 Swiss Francs.

Switzerland, a Confederation in Centra Europe is a mountainous country, with th Alpine ranges rising from its bosom. Th country is famous for its lakes.

Since 1291 Switzerland has remained completely independent country. It is a mult lingual state with most people talking mor than one language.

The Swiss terrain offers little scope fo farming. Nevertheless, a number of sma efficient farms operate and keep the farmin community going. The emphasis is on live tock raising and dairying. Forests help b providing plenty of wood. From the earlie times Switzerland has been famous for i cottage industries–high quality products bu no large-scale production.

Swiss-made watches and clocks are famou the world over. Precision tools and machine form another specialised industry. The availa bility of electric power in every cottage ha fostered growth of all kinds of small industrie throughout Switzerland. Tourism is the third most paying industry. India has always been

one of the major recipients of Swiss assistance, specially in the areas of cattle breeding, rural development, vocational training and in various fields of applied research.

President of the Confederation for 1988: Otto Stich.

Mission in India: Embassy of Switzerland, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 604225.

Consulate: Bombay – Menek Mahal, 7th Floor, 90 Vir Nariman Road. Tel: 2043550.

SYRIA

Cap: Damascus; **Area:** 1,85,180; sq km; **Pop:** 1,01,89,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Pound. US $1=£Syr 8.50.

The Syrian Arab Republic in the middle east lies in between Turkey, Iraq, Jordan, Palestine and Lebanon. The Mediterranean Sea is on the west. The Orontes and Euphrates rivers pass through Syria. The chief seaport is Latakia and Tartous.

Syria, the seat of an ancient civilization became a fully independent sovereign republic in 1946.

Agriculture and cattle-breeding comprise the major occupations of the people. The chief crops are cotton, wheat, tobacco and olives. The only mineral found is oil. Industries include oils, soap, textiles, leather and tobacco.

President: Lt. Gen. Hafez al-Assad. **P.M.:** Abdel Raouf al-Kassem.

Mission in India: Embassy of Syrian Arab Republic, 28 Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670233.

Consulate: Bombay – 3rd Floor, Cambatta Building, Sir Jamshedji Tata Road.

TAIWAN

Cap: Taipei; **Area:** 35,981 sq km; **Pop:** 1,88,00,000; **Lang:** Mandarin Chinese; **Rel:** Buddhism and Confucianism; **Currency:** New Taiwan Dollar. US $1=NT $39.28.

Taiwan, formerly known as Formosa, includes not only Taiwan proper, but also a number of small islands.

Originally Taiwan and adjoining areas were Chinese territory. In 1950 Chiang Kai Shek made Taiwan the headquarters of the Nationalist Republic of China. Although Taiwan still claims to be the legal government of all China it lost its membership in the UN and its permanent seat in the Security Council to Communist China in 1971.

The main agricultural products are rice, tea, sugar, sweet potatoes, ramie, jute and turmeric. Camphor secured from forests is a government monopoly. Industries comprise cotton fabrics and electrical goods, iron works, glass and soap. Coal, marble, petroleum and natural gas are the principal minerals.

President: Chiang Ching-Kuo; **P.M.:** Yu Kuo-hua.

TANZANIA

Cap: Dar-es-Salaam; **Area:** 9,45,087 sq km; **Pop:** 2,17,10,000; **Lang:** Kiswahili and English; **Rel:** Christianity and Islam; **Currency:** Shilling. US$1=Sh.18.50.

Tanzania in East Africa consists of Tanganyika and the islands of Zanzibar and Pemba. The islands of Zanzibar and Pemba are about 40 km off the coast, north of Dar-es-Salaam.

In April 1964, the People's Republic of Zanzibar and Pemba and the Republic of Tanganyika merged to form the United Republic of Tanzania.

The economy is agricultural. The chief cash crops are sisal, sugarcane, cotton and coffee. Cloves are grown on the islands, chiefly in Pemba. Livestock is extensively raised. Diamonds are an important export. Other minerals include gold, tin and salt.

Head of State: Ali Hassan Mwinyi. **P.M.:** Salim Ahmed.

Mission in India: High Commission of Tanzania, 27 Golf Links, New Delhi-110 003. Tel: 694351.

THAILAND

Cap: Bangkok; **Area:** 542,373 sq km; **Pop:** 50,584,000; **Lang:** Thai; **Rel:** Buddhism and Islam; **Currency:** Baht. US$1=28.25 Bahts.

Thailand, formerly known as Siam, is a constitutional monarchy in southeast Asia.

An ancient autocracy, it became a constitutional monarchy in 1932. In 1948 the country assumed its present name Thailand.

Agriculture is the mainstay of the country and engages 60 per cent of the population. The chief crop is rice, much of which is

exported. Coconuts, tobacco, cotton and teak are the other items of agricultural exports. During the last decade Thailand increased her export of manufactured and processed items. Minerals include tin, manganese, tungsten, antimony, lignite and lead.

Head of State: King Bhumibol Adulyadej Abuldet. **PM:** Prem Tinsulanonda.

Mission in India: Embassy of Thailand, 56-N, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 605679.

Consulates: Bombay – 'Paresh' 6th Floor, 4A Bhulabhai Desai Road.

Calcutta: 18 B Mandoville Gardens, Calcutta-700 019. Tel: 46-0836.

TOGO

Cap: Lome; **Area:** 56,600 sq km; **Pop:** 2,838,000; **Lang:** French (official) and Tribal; **Rel:** Tribal and Christian; **Currency:** Franc CFA. US$1=523.75 FCFA.

The Republic of Togo, formerly Togoland, lies on the west coast of Africa forming a narrow strip stretching from the Gulf of Guinea north to Burkina Faso. Togo became independent in 1960.

The principal products are coffee, cocoa, cotton, palm kernels, kapok and groundnuts. Togo's considerable natural resources are still largely undeveloped but phosphates are being mined in increasing quantities, and now form the country's principal export.

President: Gen. Gnassingbe Eyadema.

TONGA

Cap: Nuku'alofa; **Area:** 748 sq. km; **Pop:** 98750; **Lang:** English and Tongan; **Rel:** Christian; **Currency:** Paanga. US$1=1.47 Paanga.

Tonga consists of 169 islands and islets in the south western Pacific Ocean. The Tropic of Capricorn and the International Date Line cross each other very near Tonga.

Tonga became a British-protected state in 1900 and independent state on June 4, 1970.

Tonga is an agricultural country. Vegetables and fruits are grown for local consumption. The most important export crop is copra; next comes bananas.

Head of State: King Taufaahu Topou IV. **PM:** Prince Fatafehi Tuipelehake.

Mission in India: Consulate of Tonga, C/o. G.P. (P) Ltd., 17, Chittaranjan Ave, Calcutta-700 072. Tel: 27-3568.

TRINIDAD AND TOBAGO

Cap: Port-of-Spain; **Area:** 5128 sq km; **Pop:** 1,105,000; **Lang:** English; **Rel:** Christian; **Currency:** Tri & Tob Dollar. US$1=TT$2.40.

Trinidad, the second largest and most southerly of the West Indian Islands (south of Windward Isles) lies very near the north coast of South America. Attached to it for administrative purposes is the island of Tobago. Tobago is often called Robinson Crusoe Island in the belief that this was the island on which Crusoe was stranded. It is just 20 miles from Trinidad. Tobago is famous for its rich avian fauna.

Formerly a British Colony, Trinidad & Tobago achieved independence in 1962 and assumed republican status in 1976.

Industries include oil processing, manufactured goods and tourism. Chief crops are sugarcane, citrus fruit and cocoa.

President: Ellis Emmanuel Innocent Clarke, **P.M.** George Chambers.

Mission in India: High Commission of Trinidad and Tobago, 131 Jor Bagh, New Delhi-110 003. Tel: 618186.

TUNISIA

Cap: Tunis; **Area:** 164,150 sq km; **Pop:** 6,966,173; **Lang:** Arabic (official) and French **Rel:** Islam; **Currency:** Dinar, US$1=0.750 Dinar.

A republic in North Africa, lying on the Mediterranean coast and formerly a French protectorate, Tunisia became autonomous in 1955, and assumed republican status in 1957.

Tunisia is an agricultural country, and produces wheat, barley, oats, dates, olives, apricots, almonds, figs, peaches, vegetables and alfa grass. The chief minerals are phosphates, iron, lead and zinc. The principal exports are olive oil, wine, phosphates and grains.

President: Gen. Zine el Abidine Ben Ali.

Mission in India: Embassy of Tunisia, 23-Palam Marg, Vasant Vihar, New Delhi-110 057. Tel: 676204.

TURKEY

Cap: Ankara; **Area:** 779,452 sq km; **Pop:** 50.1

ı.; **Lang:** Turkish; **Rel:** Secular, main religion ılam; **Currency:** Lira. US$1=600 TL.

A republic in south eastern Europe and Asia linor, Turkey occupies a strategic position, nking as it does Asia and Europe at the Straits f Bosporus, between the Mediterranean and ıe Black Sea. The major portion of Turkey lies ı Asia Minor.

Asiatic Turkey, that is, Anatolia, was the seat f one of the earliest civilizations known. ;tanbul, the present capital, was first known as yzantium and then as Constantinople. The)ttoman Turks conquered Constantinople in 453 and founded a Turkish Empire. In 1923 urkey became a republic.

Agriculture maintains about 64 per cent of ıe population. The chief products are tobac-o, wheat, cotton, olive oil and sugar. Turkey is ıe world's second largest producer of sultana aisins. Sheep and cattle abound in the plateau f Anatolia and provide mohair for which urkey is famous. The main minerals are iron re, copper, chromium, bauxite and coal.

President: Gen. Kenan Evren, **PM:** Turgut)zal.

Mission is India: Embassy of Turkey, Plot 14, lo. 50, Nyaya Marg, Chanakyapuri, New Delhi-10 021. Tel: 601921.

Consulate: Bomaby—Mittal Court, C Wing, 0th Floor, Room No. 105, Nariman Point.

Consulate General: 2 Nazar Ali Law, Calcut-a-700 029. Tel: 44-5605.

Madras: 18/19, Bawa Rowther Road, Alwar-et, Madras-600 018. Tel: 72219.

TUVALU

Cap: Funafuti; **Area:** 26 sq km; **Pop:** 7349; **Lang:** Tuvaluan, English; **Rel:** Christian; **Currency:** Dollar.

Formerly known as the Ellice Islands, Tuvalu is a scattered group of nine small atolls in he Western Pacific Ocean, north of Fiji and ast of Solomon Islands. It became independent in 1975 under the name Tuvalu.

The poor quality of the soil permits subsist-ence farming of coconuts only. Copra and postage stamps are the main foreign exchange earners.

Gov. Gen: Sir Fiatau Penitala Teo, **PM:** Dr. Tomasi Puapua.

UGANDA

Cap: Kampala; **Area:** 241,139 sq km; **Pop:**

Uganda: 25 Years of Freedom

Kampala, Uganda: Uganda celebrated 25 years of independence on 9th October 1987 under the shadow of violence in the north and east and with many Ugandans unconvinced that the quarter century has brought any benefits to the former British protectorate.

As President Yoweri Museveni watched the traditional independence parade on Kololo Hill, where the Duke of York handed over power on behalf of Britain to Milton Obote in 1962, government troops were preparing to attack a band of at least 4,000 rebels near the eastern town of Tororo.

The fighting in the east is the latest in almost 20 years of internal conflicts that have left hundreds of thousands of Ugandans dead and shattered the high hopes of prosperity for the country that Winston Churchill called the "Pearl of Africa."

"There's nothing to show for these 25 years," Prime Minister Samson Kisekka said "We have been going backwards."

The Citizen, *newspaper of the influential Democratic Party, spoke of 25 years of repression, dictatorship and poverty.*

Ugandan's troubles began in 1966 with a power struggle between Mr. Obote and the traditional kingdoms of Buganda, Toro, Bunyoro and Ankole. In 1971, the army commander, Idi Amin, seized power and began an eight-year rule marked by mass murder, brutality and indiscriminate plunder of the economy.

He has promised to end tribalism, enforce respect for human rights and introduce a form of local democracy. But northern groups and disgruntled remnants of former armies have challenged his legitimacy, dragging Uganda back into the cycle of violence.

15 150 000; **Lang:** English and Luganda; **Rel:** Tribal and Islam; **Currency:** Uganda Shilling. US$1=565 U. Shillings.

Uganda is an equatorial state in East Africa. Formerly a British protectorate, Uganda became independent in 1962 and a republic in 1963. A military coup led by Lt. Gen. Tito Okello ousted Milton Obote's Govt. in 1985. Milton Obote had himself come to power after ousting dictator Idi Amin in 1979.

The economy is agricultural. Main products are cotton and coffee. Tea, sugar, vegetable oils, oil seeds, hides, skins and tobacco are exported. Copper is the chief mineral.

President: Yoweri Museveni; **P.M.:** Samson Kisekka.

Mission in India: High Commission of Uganda, 61 Golf Links, New Delhi-110 003. Tel: 693584.

UNITED ARAB EMIRATES

Cap: Abu Dhabi; **Area:** 82,880 sq km; **Pop:** 1 255 000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dirham, US$1=3.68 Dirham.

The United Arab Emirates consist of seven Sheikdoms in the Persian Gulf—Abu Dhabi, Dubai, Sharjah, Umm al Quwain, Ajman, Fujairah and Ras al Khaimah. The first six Sheikdoms signed the Union agreement on 2nd Dec 1971. Ras al Khaimah joined the Union only in February 1972.

Abu Dhabi, which is the capital of the Union, is the largest of the Emirates in area. Dubai is the main port of the Union and now has the largest harbour in the Middle East. The economy of UAE is almost entirely dependent on oil.

President: Sheik Zaid bin Sultan al Nahayan-(of Abu Dhabi). **PM:** Sheik Rashid bin Said al-Maktoum (of Dubai).

Mission in India: Embassy of UAE, A-7, West-End Colony, Rao Tula Ram Marg, New Delhi-110 021. Tel: 670830.

Consulate: Bombay—Bungalow No. 7, Jolly Maker Apartment, Cuffe Parade, Colaba.

UNITED KINGDOM

Cap: London; **Area:** 244,108 sq km; **Pop:** 55 624 000; **Lang:** English; **Rel:** Christian; **Currency:** Pound Sterling. £1=US$1.07.

A constitutional monarchy, the United Kingdom comprises the island of Great Britain and Northern Ireland, together with many small islands. It is separated from the coast Western Europe by the English Channel to t south and by the North Sea to the east. T northern and western shores are washed the Atlantic Ocean.

Great Britain is the largest of the islan forming the United Kingdom. It compris England, Scotland, Wales, the Isle of Man a the Channel Islands. St. George's Channel a Irish Sea lie between the UK and Irelar Britain is much less than half the size of Fran or Germany and would fit forty times into t United States of America. Yet, for hundreds years this island has been a world pow From its shores men set out to lay t foundation of what is now the United States America and to develop Canada, Austral New Zealand, the Indian continent and gr

Iron Lady Sets Record

History was made on the morning of June 12, 1987 when, in a spectacular election triumph, Mrs. Margaret Thatcher, 62, became the first British Prime Minister for more than 150 years to win a third consecutive term of office. She has also exceeded Lord Asquith's record in this century of occupying 10, Downing Street for nearly nine years without a break.

The Thatcher victory further widens the chasm in British society. The Labour Party admitted that they faced five more years of Thatcherism. *The Alliance Party was shattered. For the Social Democrats, the picture became bleak-minus Dr. David Owen, the other three founding members were not able to retain their Parliamentary seats.*

The Thatcher victory set the scene for an aggressive Tory third term in which more privatisation of services and national industries, reform of local government taxes and more emphasis on individual prosperity, would dominate the legislative programme. Mrs. Thatcher will also be tempted to bask in her new-found glory as an international super-star. She will be seen more frequently on the world stage, claiming credit for Britain.

ıreas of Africa. British institutions and nethods of government have set the pattern or lovers of freedom everywhere. And today, 3ritain's Queen is Head of a family of several nillion people, spread all over the world.

Great Britian is a constitutional monarchy. The sovereign is the Head of State and nonarchy is hereditary. Actual power is vested n Parliament which is the supreme legislative ›ody in Great Britain. The Parliament consists ›f two houses— the House of Lords and the House of Commons.

Britain is one of the world's leading industrial and exporting countries. Chief industries are iron and steel, engineering, chemicals, electronics, motor vehicles, aircraft, textiles, cloth and other consumer goods. Its coal mines yield about 128 million tons annually. Although Britain's agriculture and trawler-fishing are highly mechanised, half of the country's food supplies and most of its raw materials are imported. North sea oil is a lately added boon to British economy.

Northern Ireland is situated in the northeast of Ireland and forms part of the United Kingdom. It comprises six Ulster counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone. The rest of the island forms the Republic of Ireland. Northern Ireland has been rocked by bloody agitation for union with Catholic Irish Republic. 1985 saw an Anglo-Irish agreement which for the first time gave Dublin a say in the running of the province.

Agriculture is the main occupation in Northern Ireland. Cattle, sheep, hogs, eggs, poultry, potatoes and milk are the important products. Linen, ropes, twines, rayon, clothing, tobacco, aircraft and shipping form the main branches of industry.

Head of State: Queen Elizabeth II, **PM:** Mrs. Margaret Thatcher.

Mission in India: British High Commission, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 601371.

Consulates: Bombay—Hong Kong Bank Building, M.G. Road.

Calcutta: 1, Ho Chi Minh Sarani, Calcutta-16. Tel: 44-5171.

Madras: Hon. Consul, 24, Anderson Road, Madras-600 006. Tel: 473136.

USA

Cap: Washington D.C; **Area:** 93,72,614 sq km.; **Pop:** 22,65,47,346; **Lang:** English; **Rel:** Christian; **Currency:** Dollar.

The United States of America is a federal republic composed of 50 states, of which all except one–Hawaii islands–are in mainland America.

The United States of America, which covers the central part of North America, grew out of the British colonies that were established in North America in the first half of the 17th century.

USA's participation in the First World War and the victory of the Allies made it a world power. The end of the Second World War saw the emergence of USA as one of the superpowers of the world.

The Union originally comprised 13 states, to which 7 were added subsequently. Thirty other states, which were formerly territories were also admitted into the Union as full states, thus making up 50 states in all, apart from the District of Columbia. Each state has its own constitution. The State constitutions

Fifth Centenary of Historic Voyage

Elaborate plans are under way in Spain and the United States to commemorate the 500th anniversary of Columbus' historic voyage in 1492 which ended with the "discovery" of the New World. This has caused some heart-searching in Portugal, which has a plaint that the world knows little and cares less for the even greater navigational "firsts" which sailors from Portugal achieved in the history of the West.

Apart from "keeping up with the Joneses", traditionally Portugal has always viewed even friendly Spanish gestures for better ties with a degree of suspicion.

Historians say this is because Spain ruled over Portugal for 60 years from 158[illegible] 1640 and there is always a lurking fear that the conquistador *element still survives in Madrid. At long last, the government in Lisbon has hit upon an idea to celebrate Columbus commemoration: [illegible] a "theme park" costing [illegible] million to perpetuate [illegible] prowess.*

provide for a legislature of two Houses, (except Nebraska which has only one House). a Governor and a judicial system of its own. The state governments can deal with all matters which are not reserved to the federal legislature. The following table gives the existing states of the Union with their postal abbreviations, capitals, area and population.

States of the Union

Name	Capital	Area (sq km)	Population (1980)
Alabama (AL)*	Montgomery	133916	3893888
Alaska (AK)	Juneau	1530700	401851
Arizona (AZ)	Phoenix	295260	2718425
Arkansas (AR)	Little Rock	137754	2286435
California (CA)	Sacramento	411049	23667565
Colorado (CO)	Denver	269596	2889735
Connecticut (CT)	Hartford	12997	3107576
Delaware (DE)	Dover	5294	594317
District of Columbia (DC)	Washington D.C.	179	638432
Florida (FL)	Tallahassee	151940	9746342
Georgia (GA)	Atlanta	152577	5463105
Hawaii (HI)	Honolulu	16760	964691
Idaho (ID)	Boise	216431	944038
Illinois (IL)	Springfield	145934	11426596
Indiana (IN)	Indianapolis	93719	5490260
Iowa (IA)	Des-Moines	145752	2913808
Kansas (KS)	Topeka	213097	2364236
Kentucky (KY)	Frankfort	104659	3660257
Louisiana (LA)	Baton Rouge.	123678	4206312
Maine (ME)	Augusta	86156	1125027
Maryland (MD)	Annapolis	27091	4216975
Massachusetts (MA)	Boston	21456	5737037
Michigan (MI)	Lansing	151585	9262078
Minnesota (MN)	St. Paul	218601	4075970
Mississippi (MS)	Jackson	123515	2520638
Missouri (MO)	Jefferson city	180515	4916759
Montana (MT)	Helena	380849	786690
Nebraska (NE)	Lincoln	200349	1569825
Nevada (NV)	Carson City	286353	800493
NewHampshire (NH)	Concord	24033	920610
New Jersey (NJ)	Trenton	20168	7364823
New Mexico (NM)	Santa Fe	314923	1302981
New York (NY)	Albany	127190	17558072
North Carolina (NC)	Raleigh	136413	5881813
North Dakota (ND)	Bismarck	183118	652717
Ohio (OH)	Columbus	107045	10797624
Oklahoma (OK)	Oklahoma City	181186	3025290
Oregon (OR)	Salem	251419	2633149
Pennsylvania (PA)	Harrisburg	117348	11863895
Rhode Island (RI)	Providence	3139	947154
South Carolina (SC)	Columbia	80583	3121833
South Dakota (SD)	Pierre	199730	690768
Tennessee (TN)	Nashville	109153	4591120
Texas (TX)	Austin	691030	14229288
Utah (UT)	Salt Lake City	219888	1461037
Vermont (VT)	Montpelier	24900	511456
Virginia (VA)	Richmond	105587	5346818
Wahington (WA)	Olympia	176480	4132180
West Virginia (WV)	Charleston	62758	1950279
Wisconsin (WI)	Madison	145436	4705521
Wyoming (WY)	Cheyenne	253325	469557

* Postal two-letter (both capitals) abbreviations for U.S. states were introduced with the ZIP Code in 1963. These are fast replacing the older abbreviations.

Territories and other outlying areas

Place	Area sq km)	Population
Puerto Rico	9104	3187570[1]
Virgin Islands, U.S.	342	95591[1]
Guam	541	105821[1]
American Samoa	199	32395[1]
Canton Island and Enderbury Island	70	0
Midway Islands	5	2256[2]
Wake Island	8	1647[3]
Johnston Island and Sand Island	1.3	378[4]
Northern Mariana Islands	477	16758[5]
Trust Territory of the Pacific Islands	1380	126000[5]

1980 census. [2] 1975 est. [3] 1970 census. [4] 1978 est. [5] 1980 est.

President: Ronald Reagan. Vice-president: George Bush.

Mission in India: Embassy of USA, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600651.

Consulates: Bombay– Lincoln House, 78 Bhulabhai Desai Road, Bombay-400 026.

Calcutta: 5/1 Ho Chi Minh Sarani, Calcutta-700 071. Tel: 44-3611.

Madras: 220, Anna Salai, Madras-600 006. Tel: 473040.

USSR

Cap: Moscow; **Area:** 2,24,00,000 sq km; **Pop:** 27,57,61,000; **Lang:** Russian; **Rel:** (see below); **Currency:** Rouble. US $1=0.92 Rouble.

USSR, the largest country in the world in point of area, stretches across the continents of Asia and Europe. The country extends for over 9600 km from the Baltic Sea to the Pacific Ocean and for 4800 km from north to south. In the west it reaches the Gulf of Finland in Europe and in the east the North Pacific Ocean in Asia. In the far north east, the Bering strait separates it from Alaska.

The Soviet Union includes within its bound-

ries 15 Union Republics, 20 Autonomous tepublics and 8 Autonomous Regions.

These are the 15 Republics and their apitals: *RSFSR-Moscow; Ukraine-Kiev; Uzbeistan-Tashkent; Kazakhstan-Alma-ata; Belorusia-Minsk; Azerbaijan-Baku; Georgia-Tibilisi; Moldavia-Kishinev; Tadzhikistan-Dushanbe; Kirgizia-Frunze; Lithuania-Vilnius; Armenia-Yerevan; Turkmanisa-Ashkhabad; Latvia-Riga; Estonia-Tallinn.

Constitution and Government: The Communist party with 19 million members (1986) plays a leading role in government and is the substantial policy-making body. The supreme organ of the party is the Congress which lays down policy and elects the Central Committee. The Central Committee forms the Politbureau and the Secretariat.

Economy: USSR has a planned economy. Planning is based on public ownership in industry and trade and on state and collective or co-operative ownership in agriculture.

Languages: Russian is the dominant language of the Union. Other national languages which number about 130 are also spoken and written.

Religion: All religions including, no-religion, are permitted in the USSR. Separate figures showing the adherents of various faiths are not available.

The new Constitution adopted by the Supreme Soviet of the USSR on 7th Oct. 1977 spells out "statutory obligations on deputies, enterprises and officials for fulfilment of the electors' mandates".

Union Republics of USSR

Republic	Area sq km	Population (million)
Russian SFSR	17075000	142.1
Ukrainian SSR	603700	50.7
Kazakh SSR	2717300	15.6
Uzbek SSR	447400	17.5
Byelorussian SSR	207600	9.9
Azerbaijan SSR	86600	6.5
Georgian SSR	69700	5.2
Moldavian SSR	33700	4.1
Lithuanian SSR	65200	3.5
Kirghiz SSR	198500	3.9
Tadzhik SSR	143100	4.4
Armenian SSR	29800	3.3
Latvian SSR	63700	2.6
Turkmen SSR	488100	3.1
Estonian SSR	45100	1.5

* Russian Federation of Soviet Republics.

Chairman of the Presidium of the Supreme Soviet (Head of State): Andrei Gromyko. **General Secretary, CPSU, Central Committee:** Mikhail Gorbachev. **P.M.:** Nikolai Ryzhkov.

Mission in India: Embassy of the USSR, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 606026.

Consulates: Bombay– Palm Beach, 42, L. Jagmohandas Marg (Old Nepean Sea Road);

Calcutta: 31, Shakespeare Sarani, Calcutta-700 017. Tel: 44-4982.

Madras: Consulate General, 14, Santhome High Road, Madras-600 004. Tel: 71112.

URUGUAY

Cap: Montevideo; **Area:** 1,76,215 sq km; **Pop:** 29,90,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Nuevo Peso. US$1=90.05 NP

Uruguay is the smallest republic in South America. It lies on the north bank of the estuary of the River Plate with Brazil to the north and Argentina to the west.

Uruguay, once a part of the Spanish Empire and later a province of Brazil, became independent in 1825.

Livestock raising is Uruguay's principal occupation and takes up 60 per cent of its total land area. The chief products are meat, wool, hides, corn, wheat, citrus fruit, rice, tobacco, oats and linseed. Important industries are vinery, meatpacking and textiles.

President: Julio Maria Sanguinetta.

VANUATU

Cap: Villa; **Area:** 14,760 sq km; **Pop:** 117 000; **Lang:** English, Pidgin; **Rel:** Christian; **Currency:** Vatu.

New Hebrides became independent under the name Vanuatu on July 1, 1980. It is a double chain of 13 large and 80 small islands in the Pacific. The largest island is the Espiritu Santo. Originally a haunt of European pirates, they came under the control of France and Britain in 1906.

The population is overwhelmingly Melanesian. The major cash crops are copra, coffee and cocoa. Piggery is well developed. Manganese has been mined since 1961 and exported to Japan.

PM: Walter Hadye Lini.

VATICAN CITY STATE

Cap: Vatican City; **Area:** 0.4 sq km; **Pop:** about 1000; **Lang:** All languages accepted; **Rel:** Christian—Catholic.

Vatican City, the City of the Pope, is an independent sovereign state and includes St. Peter's Cathedral, Vatican Palace and Museum, the Vatican Gardens and neighbouring buildings. Vatican has its own railway station, postal system and police.

Supreme Pontiff: Pope John Paul II (Karol Wojtyla). **Secretary of State:** Cardinal Agostino Casaroli.

Mission in India: Apostolic Nunciature, 50-C, Nitimarg, Chanakyapuri, New Delhi-110 021. Tel: 606921.

VENEZUELA

Cap: Caracas; **Area:** 912,050 sq km; **Pop:** 17 819 000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Bolivar, US$1=13.40 Bolivar.

Venezuela (sixth largest country in South America) is the northernmost state of South America. Formerly a Spanish colony, Venezuela (Little Venice) became independent in 1821.

Venezuela is rich in minerals. It is one of the world's leading producers of oil and is a member of the OPEC. Oil prosperity is evident everywhere. Venezuela is rich in diamonds and ranks 8th in world production. Other minerals are iron, steel, aluminium, copper, tin and manganese. Agricultural products include coffee, cocoa, black beans, bananas, maize, rice and sugar.

President: Jaime Lusinchi.

Mission in India: Embassy of Venezuela, N-114, Panchashila Park, New Delhi-110 017. Tel: 6436783.

VIETNAM

Cap: Hanoi; **Area:** 329,566 sq km; **Pop:** 58 307 000; **Lang:** Vietnamese; **Rel:** Taoism and Buddhism; **Currency:** Dong. US$1=10.93 Dong.

The Socialist Republic of Vietnam (comprising of former North and South Vietnam) is a mountainous country. Running almost its entire length, is a mountain chain—the Annamite Chain. On one side of the mountain chain is the fertile Red River delta in the north and on the other side is the Mekong delta in the so The two deltas form the rice bowl of country.

The country is primarily agricultural. Ric the dominant crop and an export item. O crops are rubber, sugarcane, coffee and Minerals include coal, tin, copper, chrom and phosphates in the north. Industries cement, metallurgy, chemicals, paper textiles are found in the south.

President: Vo Chi Cong; **PM:** Pham Hu

Mission in India: Embassy of Vietnam, N Navjeevan Vihar, New Delhi-110 017. 669843.

WESTERN SAMOA

Cap: Apia; **Area:** 2835 sq km; **Pop:** 156 **Lang:** Samoan and English; **Rel:** Christ **Currency:** Tala (Dollar), US$1=2.21 Ta

Western Samoa comprises 4 islands in South Pacific Ocean, the largest of them be Savaii and Upolu. The International Date l passes very near Western Samoa. East Samoa (American Samoa) with its capita Fagotogo remains a dependency of the U

Western Samoa became fully independ on January 1, 1962 and is a member of Commonwealth.

The economy is mainly agricultural. chief products are fish, copra, cocoa, bana taro, sweet potatoes, bark cloth and ma

Head of State for life: Malietoa Tanum II. **PM:** Tofilau Eti Alesana.

YEMEN (NORTH)

Cap: Sana'a; **Area:** 195,000 sq km; **P** 8 556 974; **Lang:** Arabic; **Rel:** Islam; **Curr cy:** Rial. US$1=6.45 Rial.

The Yemen Arab Republic is in the so west of the Arabian peninsula. It was es lished on Sep. 27, 1962.

The main agricultural products are co dates, herbs, fruits, millet and maize. Co coffee, hides and skins are exported.

Head of State: Ali Abdullah Saleh, **PM:** Abdel Aziz Abdel Ghani.

Mission in India: Embassy of Yeman A Republic, B-55, Paschimi Marg, Vasant Vi New Delhi-110 057. Tel: 674472.

Consulate: Bombay—102 Maker Towers

YEMEN (SOUTH)

Cap: As Shaab (Aden); **Area:** 463,576 sq km; **Pop:** 2 066 000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dinar. US$1=0.345 Dinar.

The People's Democratic Republic of Yemen, (South Yemen) comprises a strategic port (Aden) and a large area of mainly desert territory on the southern shore of the Arabian peninsula.

South Yemen (formerly Aden and the Protectorate of South Arabia) became independent on Nov. 30, 1967.

The economy is chiefly agricultural. The main crops are sorghum, sesame, millets, wheat and barley.

Chairman of the Presidium of the Supreme People's Council: Haider Abubaker Al-Attas; **P.M.:** Yassen Said Noman.

Mission in India: Embassy of People's Democratic Republic of Yemen, B-70, Greater Kailash 1, New Delhi-110 048. Tel: 641623.

YUGOSLAVIA

Cap: Belgrade; **Area:** 255,804 sq km; **Pop:** 23,123,000; **Lang:** Serbo-Croatian, Slovian and Macedonian; **Rel:** Christian and Islam; **Currency:** Dinar.

Yugoslavia, a Balkan state, is made up of six republics—Serbia, Croatia, Slovenia, Montenegro, Bosnia-Herzegovina and Macedonia.

The modern state of Yugoslavia has grown out of a petty principality Serbia which was independent since 1878.

Nearly one-third of Yugoslavia is forest. The chief crops are wheat, maize, and potatoes. The principal minerals are coal, iron, manganese and lead.

President: Lazar Mojsov; **PM:** Branko Mikulic.

Mission in India: Embassy of Yugoslavia, 3/50 Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 666022.

Trade Commission: Bombay—Vaswani Mansions, 120A Dinsha Wachha Road.

ZAIRE

Cap: Kinshasa; **Area:** 2,344,885 sq km; **Pop:** 32 084 000; **Lang:** French & Kiswahili; **Rel:** Christian & Animist; **Currency:** Zaire. US$1=44.86 Zaire.

The Republic of Zaire was known until Oct. 1971 as the Democratic Republic of the Congo, or Congo (Kinshasa) for short. This change of name distinguished it from its neighbour, the Republic of the Congo or the Congo (Brazzaville). In 1971 the country changed the name of River Congo to River Zaire. Originally a Belgian colony, Zaire became independent on June 30, 1960.

The major assets of Zaire are the Katanga copper mines and the diamond deposits in Kasai. The country is rich in other minerals like cobalt, cadmium, manganese, zinc and uranium. The forests abound in high class wood like mahogany, ebony and teak. Principal agricultural products are coffee, palm oil and rubber.

President: Mobutu Sese Seko; **PM:** Prof. Mabi Mulemba.

Mission in India: Embassy of Zaire, 160 Jor Bagh, New Delhi-110 003. Tel: 619455.

ZAMBIA

Cap: Lusaka; **Area:** 752,620 sq km; **Pop:** 6 445 000; **Lang:** Bantu and English; **Rel:** Christian and Islam; **Currency:** Kwacha. US$1=3.51 Kwacha (after devaluation of Kwacha by 56% in Oct. 1985)

Zambia, a landlocked republic in southern Africa, takes its name from the River Zambezi, one of its biggest rivers. Originally known as Northern Rhodesia, it is separated from Zimbabwe by the Zambezi river. Kariba Dam, one of the biggest man-made dams in the world, is on the Zambezi river where it makes the border between Zambia and Zimbabwe.

Zambia became independent on 24th October 1964 and it is a republic within the Commonwealth.

Principal agricultural products are maize, tobacco, millet, cassava, groundnuts, cotton and sugar.

The country is rich in minerals including copper, zinc, cobalt, lead, uranium and manganese. Although copper mining dominates Zambia's economy, now accounting for 80% of the foreign exchange earnings, the country had made a major shift to agricultural production, as a result of the crippling fluctuations of copper prices in the world market.

President: Kenneth David Kaunda; **PM:** Kebby Silio Kambulu.

Mission in India: High Commission of Zambia, 14 Jor Bagh, New Delhi-110 003. Tel. 619294.

ZIMBABWE

Cap: Harare; **Area:** 390,272 sq km; **Pop:** 8 461 000; **Lang:** English, Shona and Ndebela; **Rel:** Tribal and Christian; **Currency:** Dollar. US$1=Z$1.65.

Zimbabwe, formerly Southern Rhodesia, lies in south central Africa. Zimbabwe achieved independence after a bitter struggle against the white minority government in power.

Zimbabwe is rich in minerals notably copper, nickel, gold, asbestos, chrome and coa The Wankie Colliery is the largest coal mine i the world. Industries include food processing metals, textiles and engineering. Maiz groundnuts, cotton, and tobacco are the chie crops, tobacco being the most important on

President: Canaan Banana. **PM:** Robert C Mugabe.

Mission in India: High Commission for th Republic of Zimbabwe, B-1/42, Safdarjun Enclave, New Delhi-110 029. Tel: 608598.

DEPENDENCIES

All dependencies are remnants of the colonial empires established by European powers. None of them are sovereign. Dependencies listed below are grouped under the following heads: 1. Australia, 2. Britain, 3. Chile, 4. Denmark, 5. Ecuador, 6. France, 7. Netherlands, 8. New Zealand 9. Norway, 10. Portugal, 11. Spain, 12. U.S.A.

1. Australia

Australian Antarctic Territory. Area: 6,442,372 sq km. A barren wasteland in Antarctica claimed by Australia in 1936.

Christmas Island. Area: 135 sq km; Pop: 3260. An island in the Indian Ocean which Australia acquired in 1958. It is noted for its phosphate production.

Cocos (Keeling) Islands. Area: 14 sq km. Pop: 1038; Cap: Bantam. The territory comprising 27 small islands in the Indian Ocean was given to the Clunies-Ross family by Queen Victoria in 1886. Australia bought the islands for 7.2 million dollars in 1978.

Heard and McDonald Islands. Area: 368 sq km. These islands in the Indian Ocean are uninhabited. They were transferred to Australia by Britain in 1947.

Norfolk Islands: Area: 30 sq km; Pop: 2287; Cap: Kingston. These islands about 1600 km from Australia are in the Tasman sea. There had been a settlement since 1856 when the descendants of the Bounty mutineers were transferred there from Pitcairn. (See Pitcairn infra).

2. Britain

Most of the British colonies have acquired Associate status and are no longer treated a dependencies.

Anguilla. Area: 91 sq km; Pop: 6758; Cap The Valley. Anguilla is one of the north ernmost Caribbean islands. In 1976 Britai granted Anguilla local autonomy, with a elected assembly. Anguillans have been de manding complete independence. Fishing i the main industry.

British Antarctic Territory. Area: ove 100,000 sq km. This territory comprises Sout Shetland Islands, South Orkney Islands and large slice of territory on Palmer Peninsula, i Antarctica. They are mostly uninhabited.

British Indian Ocean Territory. Area: 7 sq km; Pop: 2000. This territory in the India Ocean about 1120 km south of India cover the Chagos Archipelago. The three mai islands in this group are Diego Garcia, Perc Banhos and Salomon. Diego Garcia is a U.S naval base now.

British Virgin Islands. Area: 153 sq km Pop: 12,796; Cap: Road Town. These compris 36 islands and islets in the Caribbean Sea. It governed by a crown administrator aided by local council and a partly elected legislatur Livestock rearing, fishing and farming forn the main occupations.

Cayman Islands. Area: 259 sq km; Pop 11,194; Cap: Georgetown. The Cayman Islanc in the Caribbean Sea comprise three mai islands—Grand Cayman, Little Cayman an Cayman Brac. It is governed by an administr tor assisted by a local council and an electe assembly. The population is polyglot. Tourisr is the main industry.

Falkland Islands. Area: 11,961 sq km; Pop 2010; Cap: Stanley. Falklands Crown Colon

comprises two principal islands, East Falkland and West Falkland. South Georgia, a whaling settlement, and South Sandwich Islands form part of the colony. These islands were settled at different times by the French, the British and the Argentinians. Argentina still claims these islands, which they call *Malvinas*.

In 1982 Argentina forcibly occupied these islands but they were finally reoccupied by Britain. The islands continue to be a bone of contention between Argentina and Britain.

Gibraltar. Area: 6 sq km; Pop: 31,441. The Rock of Gibraltar, known as the key to the Mediterranean, is a peninsula jutting into the Mediterranean from Spain's southwest coast. Both Spain and France have laid claim to it. In 1967, a referendum voted overwhelmingly in favour of British control. This has not satisfied Spain, which still counts Gibraltar as part of its territory.

Hong Kong (see *Independent States)*

Pitcairn Islands. Area: 48 sq km; Pop: 124; Cap: Adamstown. Pitcairn Islands include Pitcairn proper as well as three uninhabited islands, Henderson, Ducie and Oeno. They are about 1920 km south of Tahiti. Pitcairn was located by the mutineers on H.M.S. Bounty, in 1790, when they were looking for an unknown hideout for themselves. They knew that if they were captured by the British navy, they would all be hanged. Therefore, after sojourn for a few days at Tahiti, from where they took some women, they retired to Pitcairn, which was uninhabited then. When Britain acquired control of the island in 1898, they transferred the descendants of the mutineers to Norfolk Island.

St. Helena. Area: 122 sq km; Pop: 3200; Cap: Jamestown. St. Helena is in South Atlantic about 1920 km west of Africa. St. Helena includes Ascension Island about 1120 km northwest of St. Helena and Tristan du Cunha and three other islands. St. Helena is famous in history as the island to which Napoleon was exiled after his defeat at Waterloo in 1815.

Turks and Caicos Islands. Area: 430 sq km; Pop: 6228; Cap: Cockburn Town. The main islands of this group, in the Caribbean Sea, are Grand Turk and Salt Cay (Turks) and south and north Caicos (Caicos). In 1962, the islands were granted partial autonomy being administered by a Crown representative with the help of a local council and partly elected legislature. The population is mostly black. Salt, crayfish and sisal are the major exports.

3. Chile

Easter Island. Cap: Hangaroa; Area: 163 sq km; Pop: 1000. Easter Island is a volcanic island in the South Pacific about 3760 km west of Chile. Its archaeological remains show that it had a very ancient civilization. The main occupation today is cultivation.

Juan Fernandez. Area: 148 sq. km; Pop: 615. This group of islands is located about 640 km west of the Chilean coast. It contains two major islands—Robinson Crusoe and Alexander Selkirk. Daniel Defoe is believed to have based his story of Robinson Crusoe on the four-year confinement of the Scottish sailor Alexander Selkirk on the Robinson Crusoe island. Lobster fishing is the main occupation of the islanders.

Chilean Antarctic Territory. Area: 1,249,993 sq.km; Pop: 200. This is the portion of the Palmer peninsula of the Antarctic that Chile has claimed for its own.

Diego Ramirez Islands. This is a group of uninhabited islands, lying some 100 km southwest of Cape Horn.

Salay Gomez, San Ambrosio and San Felix Islands. These are three separate uninhabited islands in the Pacific, which are in the possession of Chile.

4. Denmark

Greenland: **Area:** 21,75,600 sq km.; **Pop:** 59,862; **Cap:** Godthaab.

Greenland, the largest island in the world, lies to the north of North America. Around 84% of the surface is covered by an ice-cap with an average thickness of 500 feet. Most of the inhabitants are of mixed European and Eskimo origin. The main industry is fishing.

In 1979, Denmark handed over local government to the Greenlanders. Greenlandic (Eskimo language) replaced Danish as the official language. Foreign relations are controlled by Denmark.

Faeroe Islands. Area: 1399 sq km; Pop: 41,929; Cap. Thorshavn. Faeroe islands lie in the Atlantic between Scotland's Shetland Islands and Iceland. The islands are 19 in number of which 17 are inhabited. The largest island is Stromo on which the capital Thorshavn stands. The main industry is fishing. The

principal language is Faeroese. Home rule was granted in 1948. An elected Parliament controls the local administration. Two Faeroese delegates sit in the Danish Parliament.

5. Ecuador

Galapagos Islands. Area: 7842 sq km; Pop: 3100; Cap: Baquerizo Moreno. Galapagos islands are a group of 60 volcanic islands, which lie in the Pacific, about 1040 km west of Ecuador. They have a unique assortment of fauna and were declared a National Park in 1936, so as to protect its wild life. The giant tortoise found on these islands is said to be the longest living animal in the world with a life span of 200 years.

French Guiana. Area: 91,000 sq km; Pop: 61744; Cap: Cayenne. French Guiana is on the northern coast of South America. Devil's Island in Guiana served as a penal colony for France, for nearly a hundred years from 1852. In 1946, Guiana was made an overseas department of France with representation in French Parliament.

French Polynesia. Area: 4000 sq km; Pop: 1,47,518; Cap: Papeete. The French Ploynesian islands numbering around 130 lie in the South Pacific. For administrative purpose, they are grouped together as follows. *1. Windward Islands.* (including Tahiti and Moorea) *2. Leeward Islands, 3. Tuamoto and Gambier Islands. 4. Austral Islands* and *5. Marquesas Islands.* The population is almost entirely Polynesian.

One of these islands-Muruora-about 1150 km. southeast of Tahiti was used as a nuclear testing site by France in 1966 and 1968 and even as late as 1985.

Guadeloupe. Area: 1799 sq km; Pop: 3,29,634; Cap: Basse-Terre. Guadeloupe proper comprises two islands–Basse–Terre and Grand Terre–separated by a narrow channel. They are in the Leeward Islands of Lesser Antilles. The islands of Marie Galante, Les Saintes, La Desirade and St. Barthelemy are part of Guadeloupe.

Martinique. Area: 1102 sq km; Pop: 3,24,832; Cap: Fort-de-France. Martinique is one of the Windward Islands of Lesser Antilles. The island is mainly known for its volcanic mountain, Mount Pelee, which erupted in 1902 one of the most devastating earth-quak known to history. Martinique is an overse department of France.

Mayotte. Area: 373 sq.km; Pop: 48518; C Dzaoudzi. Mayotte lies in the Mozambiq channel between East Africa and Zanzibar. part of the Comoro Islands, Mayotte chose remain a French dependency while the rest the Comoros became independent in 197

New Caledonia. Area: 19058 sq km.; Pc 1,47,536; Cap: Noumea. New Caledonia ter tory comprises several island groups in Sou Pacific, located about 1200 km east of Austral Besides New Caledonia, there are the Loya Islands, about 125 km to the east (of Ne Caledonia), Chesterfield Islands, about 540 k to the northwest and the Isle of Pines, about km to the south-east. New Caledonia has lar reserves of nickel, iron, manganese a chrome. An overseas territory of France, it administered by a governor, assisted by popularly elected council.

Reunion. Area: 2510 sq km; Pop: 5,09,85 Cap: St. Denis. Reunion is a volcanic island the Indian Ocean and lies about 720 km east

Micronesia: End Of Trusteeship

The UN Trusteeship Council in June, 1986 adopted a resolution on the future of the trust territory of the Pacific islands (Micronesia) by which the UN trusteeship agreement would be terminated.

The resolution asked the United States to consult with the four parts of the territory on a date for their new status.

Micronesia is the last of the original 11 trust territories under the UN.

The resolution, co-sponsored by France and Britain, noted that the peoples of component parts– the Northern Marianas, the Marshall islands, the Federated States of Micronesia and Palau– had freely exercised their right to self-determination in plebiscites observed by the Trusteeship Council. Three of them had chosen free association with the US while the fourth; the Northern Marianas, had opted for Commonwealth status.

Last Vestiges of Colonialism

The last vestiges of colonialism will disappear from China in 1999 under an agreement initialled in March 1987 in Beijing between China and Portugal. The tiny Portuguese colony of Macao will then return to Chinese sovereignty after 400 years.

The signing ceremony was in the Great Hall of the People. A joint statement which set the date of Macao's return at December 20, 1999, was initialled by China's Vice Foreign Minister, Mr. Zhou Nan and Portugal's Ambassador to the United Nations, Mr. Rui Medina. They headed their delegations in the nine-month long negotiations.

267,491; Cap: Funchal. Madeira lies in the Atlantic Ocean 960 km south west of Portugal. The islands comprise two principal islands—Madeira and Portosanto—and several smaller islands, which are uninhabited. In 1976 Portugal granted Madeira full internal autonomy.

11. Spain

Balearic Islands. These islands are in the Mediterranean off the south coast of Spain. Majorca, Minorca, Ibiza and Formentera the largest islands. The islands have a ancient civilization dating from the Ph cians. Spain granted limited autonomy to islands in 1978.

Canary Islands. Area: 7273 sq km; 1,256,650; Cap: Las Palmas and Santa Cru Canary Islands lie in the Atlantic off the west coast of Morocco. Of the 13 is comprising the group, the largest are Canary, Tenerife and Fuerte Ventura. In the islands were divided into two provin one with its capital at Las Palmas on Canary and the other with its capital at Cruz on Tenerife.

The islands are volcanic and mountai the highest peak Pico de Teide in Te rising above the snow level to 12,198

12. United States

Guam. Area: 500 sq km; Pop: 70,000 Agana. An island in the Indian Ocean adi tered by U.S. as an 'unincorporated' ter

Midway Islands. Area: 5 sq km; Pop: A group of islands in the North Pacific C an incorporated territory of U.S.

Marshall, Caroline and Marina Isl Area: 1500 sq km; Pop: 126,440; Cap: S U.S. Trust Territory in the Pacific under a Commissioner.

Wake Island. Area: 6 sq km; Pop: 176; unincorporated territory in the Pacific.

LANGUAGES

No one has yet taken a satisfactory count of the world's languages. There are many estimates. They vary by thousands. The main cause of confusion is how to distinguish a language from a dialect.

Linguists have not agreed as to what distinguishes a language from a dialect. In view of this, differing estimates are quite possible and admissible. We have here adopted the estimate of some French and American linguists who have listed a total of 2796 languages.

Of the 2796 languages mentioned, over 1200 are spoken by American–Indian tribes, most of which do not number more than a thousand people. African–Negro groups speak some 700 different languages while the natives of Australia, New Guinea and other P islands account for as many as 500 langu of their own. Add to this an estimated minor languages of Asia of unknown c and we find that the total number o world's major languages (spoken by a m or more people) hardly exceeds 160; in words, the overwhelming majority of world's languages, say 85 per cent, are sp by numerically small groups, while som per cent represent major languages.

The world's languages considered as lies fall into 10 broad groups. 1. European, 2. Semito-Hamitic, 3. Sino-Tib 4. Dravidian, 5. Ural-Altaic, 6. Malayo-Po sian, 7. African-Negro, 8. American-India

ucasian, 10. Miscellaneous.

1. Indo-European Family†. The Indo-Euro-n languages may be subdivided into four jor divisions. (a) *Germanic* includes En-sh, German, Dutch, Swedish, Danish, rwegian and Icelandic. (b) *Romance* in-des French, Spanish, Portuguese, Italian l Romanian. (c) *Balto-Slavic* includes Rus-n, Polish, Ukrainian, Czech, Slovak, Serbo-atian and Bulgarian. (d) *Indo-Iranian* up may be conveniently divided into *Ira-n* and *Indic* or Indo-Aryan branches. *Sans-* or the Indic branch is the original o-Iranian language that was brought into ia by the Aryan immigrants. It is the earliest he Indo-European languages to appear in orded form.

2. *Semito-Hamitic Family* comprises Arabic, brew, Libyan, Berber, Galla, Amharic iiopia) and Somali languages.

3. *Sino-Tibetan Family* is dominated by nese, which with its many dialects com-nds 700 million speakers out of a total of ut 760 million for the whole family. etan, Burmese, Thai, Japanese and Korean guages form the rest of the family.

4. *Dravidian Family* includes the major guages of South India, Tamil, Telugu, nada and Malayalam.

5. *Ural-Altaic Family* includes Finnish, garian, Turkish, Mongol and Manchu.

6. *Malayo-Polynesian Family* comprises ori (native to New Zealand), Malagasy dagascar), Malay and Indonesian.

7. *African-Negro group* covers the major can languages, Sudanese, Guinean, Bantu, sa (Nigeria), Swahili and others.

8. *American-Indian Family* comprises many guages of the Red Indian tribes and in-les the languages of the Eskimos and its.

9. *Caucasian Family* consists of a number mall languages like Georgian and Circuo-

10. *Miscellaneous.* Among the lesser fami-the *Austric family* apparently commanded de circulation in very ancient times. It is at sent represented by tribal tongues like the *da* group in India. The aboriginal lan-ges of Australia, Tasmania and New Guinea apparently belong to this group.

Basque, which is spoken on both sides of the Pyrenees in Europe, appears to be a remnant of a language family called Mediterra-nean, which has long since disappeared. The present speakers of Basque number nearly a million.

Basque is a very difficult language. The story goes that the devil tried to learn Basque, so as to tempt and ruin the Basques but gave up the attempt in despair. Basque has no affinity to any European language but bears close re-semblance to many American-Indian tongues. Some linguists believe that Basque was the language of the lost continent, Atlantis.

The *Ainu,* the language of the white-skinned people of Hokkondo, the northern-most of Japanese islands, the *Hyperborean* tongues of Siberia and Kamchatka and many other minor groups too numerous to mention make up the rest of the world's languages.

Of the great modern languages, 13 are spoken by 50 million or more people. They are Chinese, English, Hindustani, Russian, Spanish, German, Japanese, Arabic, Bengali, Portuguese, Malay (Indonesian), French and Italian. Approximate estimates of speakers of different languages made by various author-ities differ greatly, sometimes by millions. This is so because the speakers of different lan-guages are spread over the whole globe and no statistics beyond so-called guestimates are available about them.

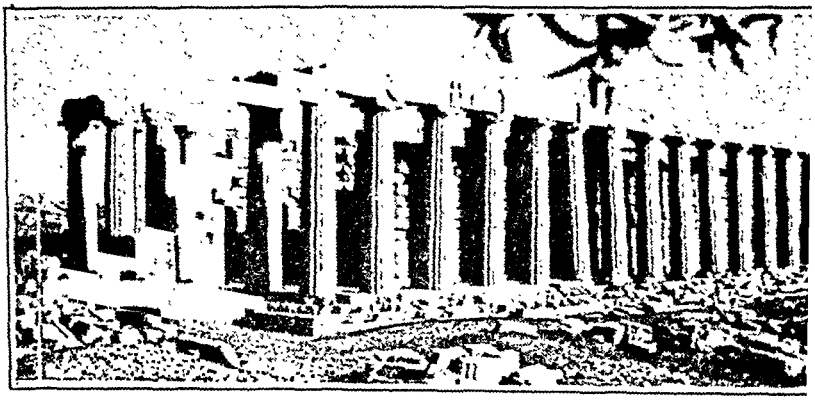
Chinese, the first language in point of the number of speakers is mainly confined to China and Manchuria. *Japanese* is first and foremost the native tongue of the people in Japanese islands, but enjoys some currency in Korea and the nearby area of Asiatic mainland. *Malay* is spoken in Indonesia and Malaysia and is understood as far as the Philippines.

Arabic covers an incredibly huge area from Africa right across Asia and is learned where-ver Islam predominates, though it is almost everywhere mingled with other languages of non-Arabic stock like Berber, Cushite and Hebrew.

English covers nearly one-fifth of the Earth's surface. It is spoken by 200 million people in the western hemisphere and includes over 60 million in Europe, some 25 million in Asia, about 5 million in Africa and more than 13 million in Oceania, comprising Australia and New Zealand.

† term Indo-Hittite is now preferred to Indo-European. is will include Anatolian language and Indo-European per.

Demise of Classical Greece A Modern Tragedy



Within the marble colonnades of the Athens Academy, girt by worthy tomes, there is a man who has thought much on Greece and its language And he has decided that here, in the land of the classics, a heritage is being denied

Since the teaching of classical Greek was curtailed in many classrooms in 1976, and modern Greek was made the language of administration, said Professor Constantine Trypanis, a former teacher of modern Greek at Oxford University, "the language has become impoverished."

Young people these days, he said, limit themselves to demotic Greek — the modern Greek — and that could have consequences in a land known more for the breadth of thought of ancients than the narrowness of moderns.

"We think through words," the professor, a former president of the Athens Academy, said. "Therefore, if we impoverish the language and take away words, we take away ways of thinking "

His words reflected something of a controversy between those who, like him, favour greater prominence for ancient Greek and for the 19th-century spoken Greek called Katharevousa, *and those who champion the demotic.*

Decades ago, the dispute spread to fisticuffs in the streets of Athens between supporters of the demotic, associated then with leftist politics, and those who spoke Katharevousa, an artificial hybrid of ancient and modern Greek created 180 years ago, and associated with the elite.

D. J Perivolaris wrote in the British publication The Economist when the c spilled into its letter umns: "It now seems tl vast richness and refin of the Greek languag been gradually reduc the banality of slang u average of 500 wor use."

"I cannot help thi that, if Socrates we come out of his grave he said, "he would seek the redemption o lock to escape the torm bearing his fellow c speaking an alien to

That was matched letter from Alex Van who listed his addr North Dakota. "Thc great figures of Greek ture — Kazantzakis, (and all the rest — u exception chose not tc in Katharevousa inu that, linguistically, d Greek is as capable of rate expression as any language," he wrote.

Major Languages

Language	No. of speakers (in million)	Principal Areas
Chinese‡	700	China
English	300	UK, USA, Canada, Ireland, Australia, New Zealand
Russian	200	USSR
Spanish	165	Spain, Latin America
Hindi	153	North India
Japanese	100	Japan
German	100	Germany, Austria Switzerland
ngali	95	India, Bangladesh
rtuguese	90	Portugal, Brazil
abic	90	Middle East North Africa
ench	75	France, Beigium Canada, Switzerland
alian	55	Italy
donesian	50	Indonesia
vanese	45	Java (Indonesia)
elugu	44	Andhra Pradesh (India)
amil	42	Tamil Nadu (India) Sri Lanka
Marathi	41	Maharashtra (India)
Urdu	40	India, Pakistan
Punjabi	40	India, Pakistan
Korean	40	Korea (North & South)
Ukrainian	37	Ukraine (USSR)
Vietnamese	35	Vietnam
Polish	32	Poland
Turkish	30	Turkey
Gujarati	25	Gujarat (India)
Thai	25	Thailand
Malayalam	22	Kerala (India)
Kannada	21	Karnataka (India)
Farsi (Persian)	20	Iran
Burmese	20	Burma
Oriya	19	Orissa (India)
Romanian	18	Romania
Serbo-Croatian	15	Yugoslavia
Hausa	15	Nigeria, Niger
Pushtu	14	Afganistan Pakistan
Bhojpuri	14	Eastern India
Sudanese	13	Sudan
Hungarian	12	Hungary
Dutch	12	The Netherlands
Swahili	12	East Africa
Visayan	12	Philippines
Nepali	10	Nepal
Greek	10	Greece
Czech	9	Czechoslovakia
Assamese	8	Assam (India)
Swedish	8	Sweden
Bulgarian	8	Bulgaria
Belorussian	8	Belorussia (USSR)
Sinhalese	8	Sri Lanka
Amharic	8	Ethiopia
Yoruba	8	Nigeria
Madurese	8	Madura (Indonesia)
Ibo	8	Nigeria
Azerbaijani	7	Azerbaijan (USSR)
Sindhi	7	Pakistan, India
Catalan	6	Spain
Chattisgarhi	6	Madhyapradesh (India)
Magadhi	6	Bihar do
Maithili	6	" do
Angika	6	" do
Fulani	6	West Africa
Malagasy	6	Madagascar
Uzbek	6	Uzbekistan (USSR)
Malay	6	Malaysia, Singapore
Chuang	6	China
Tagalog	6	Philippines
Quechua	6	Peru, Bolivia
Danish	5	Denmark
Flemish	5	Belgium
Provencal	5	France
Tartar	5	Tartar (USSR)
Kurdish	5	Turkey, Iraq, Iran USSR
Khmer	5	Kampuchea
Ruanda	5	Ruanda, Congo
Galla	5	Ethiopia
Norwegian	4	Norway
Marwari	4	Rajasthan (India)
Finnish	4	Finland
Yiddish	4	USA, Israel
Slovak	4	Czechoslovakia
Armenian	4	Armenia (USSR)
Kazakh	4	Kazakhistan (USSR)
Tibetan	4	Tibet
Uighur	4	Sinkiang (China) USSR
Twi	4	Ghana
Malinke	4	West Africa
Sotho	4	Lesotho (Africa)
Zulu	4	South Africa
Xhosa	4	do
Lithuanian	3	Lithuania (USSR)
Georgian	3	Georgia (USSR)

‡ Including (Mandarin-560, Cantonese — 45, Wu-40, Min — 35, Hokka-20)

Hebrew	3	Israel
Santali	3	Eastern India
Yi (Lolo)	3	China
Minangkabau	3	Sumatra (Indonesia)
Ilocano	3	Luzon (Philippines)
Somali	3	Somalia
Mossi	3	Burkina Faso
Albanian	2.5	Albania
Mongolian	2.5	Mongolia (China)
Miao	2.5	China
Buginese	2.5	Celebes (Indonesia)
Kashmiri	2.5	Kashmir (India)
Rajasthani	2	Rajasthan (India)
Moldavian	2	Moldavia (USSR)
Lao	2	Laos
Achinese	2	Sumatra (Indonesia)
Balinese	2	Bali (Indonesia)
Bikol	2	Luzon (Philippines)
Ganda	2	Uganda
Nyanja	2	Malawi, Zambia
Mbunda	2	Angola
Makua	2	Mozambique
Afrikaans	2	South Africa
Mayan	2	Mexico, Guatemala
Guarani	2	Paraguay
Latvian	1.5	Latvia (USSR)
Slovenian	1.5	Yugoslavia
Mordvin	1.5	Mordavia (USSR)
Chuvash	1.5	Chuvash (USSR)
Tadzhik	1.5	Tadzhikistan (USSR)
Gondi	1.5	East India
Shan	1.5	Burma
Karen	1.5	Burma
Batak	1.5	Sumatra (Indonesia)
Sidamo	1.5	Ethiopia
Kikuyu	1.5	Kenya
Kongo	1.5	Congo
Luba	1.5	Congo
Bemba	1.5	Zambia
Bhili	1	Gujarat (India)
Welsh	1	Wales
Breton	1	Brittany (France)
Macedonian	1	Macedonia (Yugoslavia)
Estonian	1	Estonia (USSR)
Bashkir	1	Bashkir (USSR)
Turkmen	1	Turkmen (USSR)
Kirgiz	1	Kirgiz (USSR)
Baluchi	1	Pakistan, Iran
Dayak	1	Borneo (Indonesia)
Tulu	1	Karnataka (India)
Wolof	1	Senegal
Mende	1	Sierra Leone
Ewe	1	Ghana, Togo
Fon	1	Dahor
Kanuri	1	West Af
Fang	1	Gabon, Camer
Drinka	1	Su
Lingala	1	Co
Mangbetu	1	Co
Rundi	1	Burundi, Co
Kamba	1	Ke
Luo	1	Ke
Sukuma	1	Tanz
Tigrinya	1	Ethic
Shona	1	Zimbal
Tswana	1	Botsw
		South Af

Russian dominates one-sixth of the r area of the Earth, being the national langu throughout the Soviet Union. But Russia used as a native tongue only by half population of Soviet Russia. The rest sp some 145 different languages

Spanish appears in its homeland Spain the ex-Spanish colonies. But these accoun only a quarter of the Spanish-speaking pop tion. The rest (three-fourths) are in western hemisphere, covering Mexico, Cer America, Cuba, Puerto Rico, the Domin Republic and all South American coun barring Brazil and the Guianas.

Portuguese is spoken in Portugal and ex-Portuguese colonies. But the greatest n ber of Portuguese speakers is concentrate Brazil.

German is practically confined to Eur where it is spoken in Germany, Austria most of Switzerland. But it enjoys wide curr cy as a scholastic language all over Eurc especially in Czechoslovakia, Poland, Netherlands, Hungary, Yugoslavia, Swe and Norway, where it is spoken by an mated 20 million people.

French is the language of France, par Switzerland, Belgium, ex-French possessi or Departments overseas and Canada (e cially the province of Quebec). It is repute a language of culture in Europe, and is spo by some 5 million non-French men, in a tion to their mother tongues.

Italian, the language of Italy, is curren the former Italian colonies, Eritrea, Som land, Libya and Cyrenica and is used by Ita emigrant groups numbering some 10 mill living in various Mediterranean countries, USA, Argentina, Brazil, Uruguay and Chi

RELIGIONS

Religions have played a very great part in the evolution of human civilzation and culture. They evolved as a set of beliefs concerning the cause, nature and purpose of the universe and grew as an organised system of beliefs that bound people to become a close-knit society. Very often the religions spread out from the lands of their origin.

Hinduism, has left its permanent impact on Indian life and culture. Buddhism wrought revolutionary transformation in the life and culture of the peoples of South-East Asia and China. Christianity and Islam spread among the peoples of Asia and Europe kindling latent fires and opening fresh chapters in the history of the world.

The religions of the world may be grouped into three broad classes. 1. Leading religions, 2. Lesser religions and 3. Primitive religions. The leading religions are Buddhism, Christianity, Confucianism, Hinduism and Islam. The lesser religions include Jainism and Sikhism of India, Judaism of Palestine, Shintoism of Japan, Taoism of China and Zoroastrianism originally of Persia. The primitive religions count by the thousand. They are all very small communities, each with a handful of votaries. They are principally found among the aboriginal tribes of Australia, the Americas, India, Burma, South East Asia, Indonesia and Africa.

Buddhism was founded by Gautama Buddha who lived in the 6th century B.C.† Gautama, otherwise known as Siddhartha, was the son of an Indian prince, Suddhodana, chief of the Sakyas. Even as a child he was given to contemplation. The sorrows and sufferings of the world tormented his loving heart and he abandoned his princely home, his wife and child and started in pursuit of enlightenment at the age of 29. After years of wandering and contemplation Gautama at last found enlightenment while meditating under a great peepul tree. From that day, he came to be known as the *Buddha* or the Enlightened One.

The Buddha preached that emancipation from the cycle of rebirths, i.e., *Nirvana,* can be attained by a path of self-purification. He attached little importance to rituals and ceremonies in which the Brahmin priests indulged. He does not appear to have even envisaged the existence of a Supreme God. He preached in the vernacular of the people, a simple doctrine of love and mercy which appealed to all.

Buddhism is essentially a religion of kindness, humanity and equality. It denounces all claims to superiority on grounds of birth or caste. The eminence or lowness of men is determined by their own conduct and actions.

Two or three centuries after the death of the Buddha, we find the Buddhist religion divided into two broad schools, the *Hinayana* and the *Mahayana.* The Hinayana school prided itself on maintaining the teachings of the Buddha in their original form. The Mahayana school converted the human Buddha—*Sakya muni*—into an eternal and supreme deity, presiding over the world and succouring his devotees.

Mahayana Buddhism is prevalent in China, Tibet, Korea and Mongolia. Hinayana Buddhism is prevalent in Burma, Sri Lanka, Kampuchea and Vietnam.

The most sacred places of Buddhism are Lumbini in Nepal, where the Buddha was born, the Bodh Gaya (Bihar), where he received enlightenment and Kusinagara (UP), where he attained *nirvana.*

Christianity founded by Jesus Christ now commands the largest following in the world. Christ was born in B.C. 4 in Judea.* He started preaching about the Kingdom of God when he was thirty. His activities roused the opposition of the Jewish highpriests who accused him of blasphemy.

He was crucified under the orders of Pontius Pilate, the Roman Governor.–After three days, Christ was resurrected from the dead. With the Resurrection of Christ, his disciples took heart and went about preaching the Kingdom of God to all the peoples of the world.

Christianity spread throughout the Roman Empire where it was made the state religion in the 4th century A.D. Later, the Church split into two broad groups—the Western Church under the Pope in Rome, and the Eastern

† The actual dates of Buddha's birth and death are disputed.

* The date is disputed. See Chapter 'Outline of History' in part one.

Churches under the Patriarchates of Antioch, Alexandria and Constantinople. Still later, further disruptions took place. The Roman Church was broken up by Protestantism, while in the Eastern Churches, many communities like the Armenians, Ethiopians, Russians and Indians set up their own Patriarchates.

Jerusalem, where Christ lived and preached, is the most sacred place for Christians all over the world.

Confucianism: Kung Fu Tsu, better known as Confucius, was born in 551 B.C. in China. Even as a young man, he had an ardent thirst for knowledge. When still in his youth, he met and talked with Lao-tse who was then a famous figure. Struggling through poverty, Confucius first became a minor civil servant and later rose to be the magistrate of a state. His brilliant administration evoked the jealousy of others, who conspired to bring about his dismissal in 96 B.C. Thereafter he wandered about penniless and homeless, until in 478 B.C. he died, aged seventythree.

After his death, his sayings were collected in the *analects* and he was honoured throughout China, as a deity ranking with the deities of Heaven and Earth. Confucius was a moralist rather than the founder of a religion. He observed, systematised and taught the age-old teachings of China. He advocated regularity in life, temperance in food and drink and the importance of learning, loyalty and truthfulness. He formulated a golden rule of reciprocity, "what you do not want done to yourself, do not do to others"—just a step short of the Laotsean and Christian doctrine of returning good for evil.

Peking is the city sacred to the adherents of both Taoism and Confucianism.

Hinduism: The word *Hindu* originally was the Persian rendering of the Indian word *indhu*—the Sanskrit name of the river Indus. The Persian name *Hindu* must have come into being in the 6th century B.C. when the territory round Indus formed part of the Persian Empire. But the name disappeared from India, with the exit of the Persians. It came back to India, centuries later, with the Muslim invasions from the north-west.

At that time, however, the word *Hindu* simply meant *Indian* and had no religious connotation. Subsequently, under the Mughal emperors, the word assumed a religious tint and under the British it came to be applied exclusively to the people, who followed the age-old religion of India.

The basis of Hinduism lies in the four *Vedas* of the Aryans. The word *veda* is derived from *vid*, to know. The vedas are known as *sruti*, or that which is heard or revealed. The orthodox Hindus think that the vedas are *anadi*, without a begining. Others believe that the vedas were revealed to ancient *rishis* (sages).

The *Rigveda* is the earliest and the most important of the four vedas. It is the oldest scripture in the world having been composed in the third millennium B.C. It consists of over 1000 hymns, a heterogeneous collection of prayers to gods like *Agni, Vayu, Varuna, Indra, Mitra, Soma, Ushus* and others, instructions on rituals, incantations, songs, and verses on nature. The other three vedas are more specialised. The *Yajur Veda* deals mainly with sacrificial invocations, the *Sama Veda* contains melodic invocations and the *Atharva Veda* deals with medicines and magical incantations.

Each Veda is divided into *mantras* (hymns), *Brahmanas* which explain the mantras and rituals, *Aranyakas*, mystic teachings meant for meditation in forests and *Upanishads*, speculations on Being and Reality.

The early Aryan gods were deifications of natural forces, Agni, Varuna, Soma, Surya etc. They were worshipped with sacrifice. There were no temples or images. The sacrifices were performed on open altars, where a wood fire was lighted, and offerings of food and drink, in the shape of meat, fat, butter, milk, cakes of barley and the spirituous drink *soma*, were offered to the gods, who were supposed to dwell in the sky. This was the vedic rite of *homa*, the quintessence of vedic religion.

When the Aryans came to India, they encountered a highly civilized people—the Dravidians—the builders of the City Civilization of the Indus Valley. They defeated the Dravidians and probably enslaved them. But though superior in war, the Aryans were far behind the Dravidians in culture. Before long they succumbed to the superior culture of the pre-Aryans and adopted it. *Graecia capta ferum victorem cepit** (Enslaved Greece made a slave of her rough conqueror).

The mainstay of popular Hinduism is the later vedic literature which consists of the

* Horace

Hinduism headed by *Siva-Uma* and *Sri-Vishnu*. *Siva* and *Uma* are clearly pre-Aryan gods. *Vishnu* was partly Aryan—a form of Sun god—and partly Dravidian—the blue sky-god—*Sri* was an Aryan goddess to start with, the Indian counterpart of the European *Ceres*, but in her association with Vishnu as *Gajalakshmi*, she is indigenous and pre-Aryan.

The outstanding instance of the Dravidisation of the Aryan religion is found in the preponderant place given to the *puja* form of worship compared to Aryan *homa*. Puja rite, which involves the offering of flowers, fruits, leaves, water etc. to an image or symbol of divinity, is characteristically Dravidian. This is now the everyday form of worship for all Hindus—the homa being kept up artificially among limited groups of Brahmins or Kshatriyas.

The imprimatur or theological sanction for puja is found in the *Bhagavad Gita*** which is the bedrock of modern Hinduism.

"If any offers me with devotion, a leaf, a flower, a fruit or water, I receive that offered in devotion by the person whose soul is disciplined". Gita IX, 26.

Hinduism emerged as the national religion by a brilliant synthesis of Aryan and non-Aryan ideas. This ability to adopt or adjust to alien ideas has made Hinduism a highly receptive and tolerant religion. It is this receptivity that has helped it to survive the onslaughts of other religions and influences through centuries.

When Buddhism rose as a challenge to ɔdox Hinduism, Hinduism reacted by ⁻ifying the Buddha as an *avatar* of Vishnu. Similarly, the Jain idea of non-violence or non-injury to living things appealed to many people as a gospel of mercy, good will and fellowship with all living creatures. Hinduism took over the idea and worked it out as the doctrine of *Ahimsa*, which was elevated as the highest of all *dharmas*.

In spite of its great adaptability and accommodation, Hinduism has been rocked by dissensions and disputations. The bitter struggle between *Vaishnavites* and *Saivaites*, between supporters of God Vishnu and God Siva, lasted for a long time. But this was rather a struggle for supremacy in the Hindu fold—never a segregation from it.

Like all old religions, the appeal of Hinduism has flagged and waned from time to t And from time to time, reformers have sp up, brilliant intellects and devout ascetics *Sankaracharya* (8th century A.D.), *Rama* (12th century) and *Madhwa* (century)—who have not merely rest popular faith but also countered heretic fissiparous tendencies, by a re-interpreta of Hindu philosophy and reformation Hindu practices, to meet the demands of times.

Modern Hinduism may be dated from days of *Sri Sankaracharya*, more than 1 years ago. Sankara lived in the 8th century He was born at Kaladi in Kerala of a N boodiri Brahmin family. He is by far greatest of Hindu reformers. Before he die the early age of 32, he travelled through In thrice, debating with scholars and expound his theory of *Advaita* or monism. He was only a great thinker but also a great organi

Among the most durable monuments to organising zeal are the famous monasteries Sringeri in Karnataka, Dwaraka in Gujarat, P in Orissa and Badrinath on the snowy heig of the Himalayas. He purged Hinduism many evil cults and practices. Thus, t worship of the Mother Goddess, who w called by many names—*Devi, Durga, Ka Lakshmi, Parvati, Amba, Amman*, etc—h degenerated into licentiousness.

Devi worship, in the past was part of t *Sakta* cult with its five Makaras, *matsya* (fish *mamsa* (meat), *madya* (liquor), *mudr* (dance), and *maithuna* (copulation). Sanka reformed this cult and restored it to i original purity. Similarly he is said to have p down the *Kapalikas*, who indulged in huma sacrifices to appease God Bhairava. Sanka thus rejuvenated Hinduism and gave it a ne philosophy and a new look.

Ramanuja, the next great reformer lived i the 12th century A.D. He was born i Sriperumbadur in Tamil Nadu. He modifie Sankara's philosophy of Advaita and preache a new philosophy *Visishtadvaita* or qualifie monism. Ramanuja laid great emphasis or *bhaktimarga* or deliverance by way of devo tion to a compassionate god, in contrast to *Karmamarga* or the way of deliverance by the performance of vedic rites.

Madhwa, born in 1238, near Udipi in Karnataka is the third of the great reformers.

** Bhagavad Gita occurs in the Mahabharata.

He is the supreme exponent of *dvaita* or dualism. All these great reformers stressed the importance of *bhakti* or devotion to a personal god.

The renovation of Hinduism started by this great trio of the south, was continued by a number of saints and sages in the rest of India, Ramananda of Allahabad. Vallabhacharya of Benares, Namadeva of Maharashtra. (who unlike others came from a low caste), Mirabai of Rajasthan (a princess turned *sanyasin),* Ekanath, Tukaram and Ramdas, all from Maharashtra, Surdas, the blind poet of Agra, Lalla of Kashmir, Sant Kabir of Varanasi and others.

The greatest of the *bhakti* leaders and one of the greatest reformers of Hindu religion is Chaitanya (1485-1533), who hailed from a Brahmin family in Bengal. At the age of 24 he became a sanyasin and spent the rest of his life, preaching the bhakti movement all over North India.

Organised work for the re-vitalisation of Hinduism started with Swami Dayananda Saraswati (1824-1883). He founded the *Arya Samaj* and started the *Sudhi* (purification) movement, for the conversion of non-Hindus to Hinduism. He was a great Sanskrit scholar and admonished his followers to go back to the Vedas.

The next great reformer, in point of time, was *Ramakrishna Paramahamsa* (1836-1886). He was a poor priest in a temple of Calcutta, without any formal education, eastern or western.But he was a deeply religious man, who believed in the inherent truth of all religions. His catholicity, mysticism and spiritual fervour attracted a small band of devoted disciples. They formed a Mission, named after him, the Ramakrishna Mission.

The most famous leader of the Mission was Narendranath Datta, an English educated disciple of Paramahamsa. In later years, he became famous as *Swami Vivekananda* and carried the message of Hinduism to far off countries like USA. The Ramakrishna Mission stands for social and religious reform, based on the ancient culture of India.

Islam: In Arabic, Islam means submission, obedience or peace. It is meant as the obedience and submission to God to attain peace in the world. The believers of this universal religion are called Muslims. They belive in one and only God, His Angels, His Books as completed by the Quran as the word of God revealed to Prophet Muhammad through Angel Garbiel and His Messengers, with Muhammad being the last of them all.

Some call Islam *Mohammedanism* and address believers as *Mohammedans.* Muslims reject this as the misnomer will imply that the religion was founded by Muhammad, a mortal being. They believe that Muhammad was commissioned as prophet by God to teach the word of God.

The Muslims have to bear witness to the one-ness of God and the messengership of Muhammad; have to observe prayers five times daily with a weekly Juma prayer on Friday noons; have to pay a religious tax of 'Zakath' to the rightful beneficiaries, the minimum of which is two and a half per cent of the annual net income or of the total value of stock in business after discounting expenses and credits; have to keep the dawn-to-dusk fast, without food, drinks and smoking, in the ninth month of Ramzan of the Islamic Year. They have to make a pilgrimage to the annual congregation called *Haj* to Makkah (Mecca) in Saudi Arabia in the second week of the 12th month of Dul Haj. This pilgrimage once in a lifetime, to Kabah in Makkah is obligatory to the Muslims, male or female, who are financially, physically and mentally fit.

Every Muslim turns his face five times daily towards Kabah, the small cubical mosque in Makkah. They believe that it was the first mosque to be dedicated to the pure worship of the one and only God.

The Muslim Era began with the emigration of Muhammad from Makkah to Madina in 622 A.D. The Islamic Calendar is lunar, determined by the sight of the Moon. It is of 12 months, and each month is either thirty or twenty-nine days, depending upon the position of the Moon.

The two main festivals of the Muslims are *Idul Fiter* and *Idul Azha* publicised as 'Ramazan'. Idul Fiter is the feast of breaking the fast of Ramazan on the first day of the tenth month of Shavval. Idul Azha is the festival of sacrifice, mentioned otherwise as *'Bakrid'* in calendars. This falls two months after Ramazan, on the tenth day of the last month of Dul Haj, a day after the holy congregation of Haj at Makkah. Prophet's day or Miladunnabi (the birthday of Prophet Muhammad) and Muharram (the day

of sacrifice of Imam Husain, grandson of Muhammad) are also celebrated by Muslims.

Islam had its influence in the three continents of Asia, Africa and Europe. It gave right of property to women 12 centuries before England adopted it in theory.

As per 1981 statistics, there are fifty-seven crore (570 million) Muslims in the world. Indonesia with 14 crore (140 million) tops the list. India has nine crore Muslims with Bangladesh 7.6, Pakistan 7.5, Nigeria 6.2, Russia 6, and China 5 crore.

Jainism derives its name from Jaina (the conqueror), the second name of Vardhamana Mahavira. Mahavira, like Buddha belonged to a princely family in Vaisali. At the age of 30, Mahavira, renounced the world and spent 12 years in austerity and meditation in search of truth. At last, at the age of 42, while meditating under an Asoka tree, he received enlightenment. He was thereafter known as Jaina, the Conqueror.

According to Jain legends, Mahavira was born at the beginning of the sixth century B.C.* The actual dates of his birth and death are hotly disputed.

Jainism preaches that by following the threefold path, all souls will be released from the cycle of births and deaths and will reach the pure and blissful abode above (Sidha Sila). The threefold path consists of three jewels (triratna), right belief, right cognition and conduct.

After A.D. 82 Janinism split into two groups, Digambaras and the Svetambaras. The Digambaras wore no clothes, while the Svetambaras wore white clothes. Both groups in overcoming the senses by meditation and penance.

The Jains have many places of pilgrimage in Indiia. The most important of them are the mountain of Samata, near Parsanath in Bihar, where Parsua is said to have attained nirvana; Papapuri or Pavapuri where Mahavira died; Mount Abu in Rajasthan and Shravenbelgol in Karnataka, where the temples of Tirthankara, Adinath and Bahubali are situated, and the high monolithic statue of Gomateshwar, son of Rishabha, stands.

* "The 2500th Nirvana Anniversary of Mahavira was celebrated as a national festival for one year commencing on 13th November, 1974"

Judaism, the religion of the Hebrews was in existence long before its first prophet and lawgiver Moses came on the scene. The first historical figure among the Hebrews is Abraham, who left Ur in Chaldaea with the Hebrew tribe, about 2000 B.C. After a long period of wandering in the Arabian desert, the Hebrews at last settled in Egypt. However, they were enslaved by the mighty Pharaohs.

It was left to Moses to liberate the Hebrews from Egyptian bondage and to lead them to the land of milk and honey promised them by God. On the way, at Mount Sinai, Moses received the 'Ten Commandments' from 'Yahweh' or Jehovah, the Supreme God. By the time the Hebrews had settled in the Promised Land, the first five books of Moses had been written.

The Hebrews organised themselves into the Kingdom of Israel round about 1000 B.C. In 586 B.C. Nebuchadnessar conquered Israel and carried off the Hebrews into the Babylonian Captivity. With the conquest of Palestine by Cyrus, the Hebrews were resettled in Israel. It was during this period that the writings of the Prophets and the Psalms were codified.

The Law, the Prophets and the Psalms remained as separate holy books until the time of Christ, when they were put together as the Hebrew Bible or the Old Testament. The Talmud, which is a collection of detailed laws for the guidance of civil, domestic and social life, was completed during the 4th and 5th centuries A.D.

Judaism is a simple religion which aims at a moral life. To the Jews, right conduct is more important than right belief. According to the Talmud every good man is assured of heaven, the gentile who observes the moral law being the equal of the High Priest. Judaism is free from sentimentalism and is averse to self-imposed suffering, idleness and asceticism. Jerusalem is the Holy City of the Jews.

Shintoism: Shinto is a Japanese ethnic religion. The word "Shinto" means "the way of the spirits", the underlying principle being ancestor worship. It must have evolved gradually, accumulating fresh material as ages passed without any religious reformer directing it or altering it. It has no sacred books or moral code.

Shinto is the religion of the followers of Mikado, the Japanese Emperor.

The Mikado is, in fact, the focal point of the religion, the only God that it knows. There are, however, innumerable deities. Except for certain rituals developed through the ages, Shinto has no religious content or appeal.

Shinto declined rapidly after the Japanese emperor surrendered his claim to divinity in 1947.

The central shrine of Shintoism is at Ise, in Central Japan, to which all devout Japanese make pilgrimages. Shintos are found almost exclusively in Japan.

Sikhism: The Sikh religion was founded by Guru Nanak who lived in the Punjab between A.D. 1469 and 1538. He was very much troubled at the frequent quarrels between Hindus and Muslims. He preached that there was only one God for Hindus and Muslims and tried to work out a synthesis of the two religions. His mission became popular and he very soon had a large following. He travelled extensively, going as far as Maldeah and was in frequent contact with the leading sages of Hindu and Muslim religions. On his death, he was succeeded by his disciples who became Gurus in their turn.

The Gurus have built up the modern Sikh community. The fifth guru, Guru Arjan Mahal (1581-1606) compiled the *Adi Granth*, the first sacred book of the Sikhs. The most famous Guru is Guru Govind Singh (d.1708). He organised the Sikhs into a militant community. He instituted *Pahul* or baptism in water stirred by a dagger.

Those who were baptised were known as the *Khalsa* (pure) with the designation *Singh* (lion). All members of the Khalsa had to wear the 5 k's—*Ker* (long hair), *Kangha* (comb), *Kripan* (sword), *Kachcha* (short drawers) and *Kara* (steel bracelet). The Khalsa soon emerged as a valorous fighting unit. It enabled the Sikhs to form a state of their own under *Maharaj Ranjit Singh*.

The growth of the British power in India reduced the Sikhs to submission. But they continued to be fighters and soon came to be described as the fighting arm of the British. The majority of the Sikh population is found in the Punjab and the city of Delhi. Their most important sacred place is the Golden Temple at Amritsar.

Taoism: Lao-tse, the founder of Taoism, was born in China about the sixth century B.C.

Religious Membership

Total Christians	:	1,056,692,945
Roman Catholic	:	621,689,329
Eastern Orthodox	:	65,645,210
Protestant	:	369,458,315
Jews	:	17,320,140
Muslims	:	555,277,160
Zoroastrians	:	245,629
Shintos	:	33,050,000
Taoists	:	20,563,475
Confucians	:	163,130,115
Buddhists	:	250,951,580
Hindus	:	462,589,619
Total Membership	:	2,559,820,000
Total population	:	4,721,686,000

(Source: Britannica Book of the Year, 1964)

Lao-tse put down his teachings in a book called Tao-Teh-King, which became the Taoist Bible. "Tao" originally meant "road" or way, but later came to signify the perfect reality. Taoism preached goodness, simplicity, purity and gentleness in everyday life. The three jewels of Taoism are compassion, moderation and humility. Lao-tse taught what Christ later preached, the return of good for evil. "When you are reviled, cherish no resentment, be kind and generous without seeking any return."

Lao-tse's philosophy, highbrow as it was, failed to evoke response in the common man. The disciples of Lao-tse used "Tao-Teh-King" as a source book for magic and Taoism degenerated into mere ritual. By the middle of the second century B.C. Taoism had debased itself so far as to deify Lao-tse, who was worshipped with sacrifice.

Zoroastrianism. Zarathushtra or Zoroaster, the founder of Zoroastrianism, was born in Media (modern Iran) about 660 B.C. He thought that life was a struggle between the forces of good and evil. The spirit of good was Ahura Mazda with its helper mithras, the Light. The evil spirit was Angra Mainyu or Ahriman, the Ire Demon. Man could not be neutral in the struggle. He had to fight for right and live a righteous life. Those who lived righteously went to paradise which was a state of immortal holiness in thought, word and deed. The impious were condemned to an eternal hell of evil thoughts and deeds and physical torment. By 500 B.C. Zoroastrianism had become the leading faith in Persia and Media.

Letters to Herodotus, Menocecus and others, De rerum natura.

Euripides (480–406 B.C) Greek dramatist. *Alcestis, Bacchae.*

Gunadhya (1st cent. A.D.) Sanskrit writer. *Brahat Katha* (the great story), a collection of many stories.

Hala (Satavahana King) (1st cent. A.D.) Sanskrit poet. *Saptasati* (Seven Hundred Verses).

Herodotus (c. 485–425 B.C.) Greek historian. *History of the Persian Invasion of Greece.*

Homer (c. 700 B.C.) Greek epic poet. *Illiad Odyssey.*

Horace (65–8 B.C.) Latin poet. *Satires Epodes, Odes.*

Jayadeva (12th cent. A.D.) Sanskrit poet *Gita Govinda* (Song of Govinda).

Jimutavahana (12th cent. A.D.) *Dayabhaga,* a treatise relating to Hindu inheritance—part of a great compilation, *Dharma Sutra.*

Juvenal (Decimus Junius Juvenalis) (60–140), Latin poet. *Satires.*

Kalhana (12th cent. A.D.) Sanskrit writer *Rajatharangini* (River of Kings—a story of the kings of Kashmir).

Kalidasa (5th cent. A.D.) The greatest Sanskrit poet. Plays: *Malavikagnimitra* (Malavika and Agnimitra—a comedy of harem intrigue), *Vikramorvasiyam* (Urvasi won by valour), *Abhijnana Sakunthalam* (Recognition of Sakunthala). Epics: *Raghu Vamsa* (Dynasty of Raghu), *Kumara Sambhavaon* (Birth of the War god). Lyrics: *Meghdoo* (Cloud Messenger), *Ritu Sambara* (Garland o Seasons).

Kautilya (Chanakya) (4th cent. B.C.) was the Chief Minister of Chandragupta Maurya. A well-seasoned politician, he practised Machiavellian tactics many centuries before Machiavelli. The only work attributed to him is *Artha Sastra* (Science of Statecraft).

Kumaradasa (6th cent. A.D.) Sanskrit poet *Janakiharana* (Abduction of Janaki).

Magha (7th cent. A.D.) Sanskrit poet. *Sisupala Vadhom* (Slaying of Sisupala).

Mahendra Vikraman (a Pallava King) Sanskrit poet. *Matta Vilasa* (Sport of Drunkard).

Manu (2000 B.C.) (legendary author) Sanskrit law-giver. *Manu Smrithi* (The Code of Manu).

Narayana (12th cent. A.D.) Sanskrit story teller. *Hitopadesa* (Salutary Advice)—selected stories from *Panchathanthra.*

Naya Chandra Suri (14th cent.) Sanskrit poet. *Hammira Mahakavya* (Epic of Ham-

Centenary of herlock Holmes

ain celebrated 1987 as a year of wide tributes to Sherlock Holmes, y's greatest fictional detective, who his debut in print 100 years ago. thin man with a sharp nose and d pipe who still receives an average of ters a week asking for help in solving s has been entertaining detective readers since 1887.

e is still incredibly popular", said William Michell, secretary of the 800 g Sherlock Holmes Society in Britain. e ace detective, along with his bumb friend Dr. Watson, figured in four of n Doyle's novels and 56 short stories. uch was his universal popularity that spired over 40 stage-plays and 200 TV film versions of his exploits. This is ps the first time that a literary characcentenary is being celebrated.

nan Doyle's only surviving daughter, e Jean Conan Doyle attended a al Westminster banquet on January 6 e 180 members of the Sherlock ies Society were also present. Celebra were held in New York, Adelaide in alia, Tokyo in Japan and Meningen vitzerland.

e last-mentioned will ring a bell for ock Holmes' buffs, because it was a water-fall known as Richenbach the detective's arch enemy Prof. arty threw Sherlock Holmes in a e. But readers would have none of it id three years later, Conan Doyle was d to revive his popular character for be was paid a lot of money. Curious-

ie Tangled Skein, the first Sherlock ies story, later re-issued at Study In *et, brought Conan Doyle only 25 ds as advance royalty in January*

Ovid (Publius Ovidius Naso) (43 B.C.–16 A.D.) Latin poet. *Tristia, Amores, Persephone Rapta.*

Panini (4th cent. B.C.) Sanskrit grammarian. *Ashtadhyayi* (Book of Eight Chapters).

Patanjali (2nd cent. B.C.) Sanskrit grammarian. *Mahabhashyam* (Commentary on Panini).

Plato (427–347 B.C.) Greek philosopher. *The Republic, Apology of Socrates, Phaedo, Laws.*

Pliny the Elder (23–79 A.D.) Latin philosopher. His *Natural History* is an encyclopaedia of all scientific knowledge available at the time.

Plutarch (c. A.D. 46–120) Latin biographer, *Lives.*

Rajasekhara (10th cent. A.D.) *Sanskrit. Karpoora Manjari,* a romantic drama.

Sandhyakara (12th cent. A.D.) Sanskrit poet. *Rama Charitha* (Story of Rama).

Sappho of Lesbos (early 6th cent. B.C.) Greek poetess of romance and amour. *Unrequited Love.*

Seneca, Lucius Annaeus (c. B.C.–56 A.D.). Stoic philosopher, tutor of Nero. Sentenced to end his own life, he killed himself courageously.

Somadeva (11th cent. A.D.) Sanskirt poet. *Katha Sarit Sagara* (Ocean of Story)—collection of stories.

Sophocles (495—406 B.C.) Greek dramatist. *Antigone, Oedipus the King, Oedipus at Colonius.*

Subandhu (7th cent. A.D.) Sanskrit poet. *Vasavadatta.*

Sudraka (5th cent. A.D.) Sanskrit dramatist. *Mrichhakatika* (Clay cart).

Tacitus, Caius Cornelius (55 c.–120) Latin historian. *Germania, Annals, Histories.*

Thucydides (c. 460–399 B.C.) Greek historian of the *Peloponnesian War.*

Vakpati (8th cent. A.D.) Sanskrit poet. *Ganda Vadha* (Slaying of Ganda) describes the exploits of Yasovarma, King of Kanyakubja.

Valmiki (6th cent. B.C.) Sanskrit epic poet. *Ramayana.*

Vatsyayana (5th cent. A.D.) Sanskrit writer. *Kama Sutra* (Art of Sex).

Vidyapathi (Legendary author) Sanskrit prose writer. *Pancha Tantra* (Five Treatises)—a collection of tales.

Vijneswara (11th cent. A.D.) Sanskrit writer. *Mitakshara,* a treatise on the law of Hindu inheritance.

Virgil (Publius Vergilius Maro) (70–19 B.C.) Latin epic pet. *Aeneid, Georgics.*

Visakhadatta (6th cent. A.D.) Sanskrit dramatist. *Mudra Rakshasa* (Minister's Signet Ring), *Devi Chandragupta* (The Queen and Chandragupta)—political dramas.

Vyasa, (6th cent. B.C.) Sanskrit epic poet. *Mahabharata,* considered the logest epic in the world. It has nearly 100,000 stanzas.

Xenophon (444–359 B.C.) Greek soldier, historian and author. *Anabasis* (The Retreat of the Ten Thousand).

Zeno of Citium (c. 340–264 B.C.) Greek philosopher, founder of the Stoic school. Zeno taught in *Stoa Poikile* of Athens, hence *Stoic.*

WELL KNOWN BOOKS

The following is a list of some notable works and their authors:

A China Passage: *John Kenneth Galbraith*
A Critique of Pure Reason: *Immanuel Kant*
A Dangerous Place: *Daniel Patrick Moynihan*
A Doll's House: *Ibsen*
Adonis: *P.B. Shelley*
A Farewell to Arms: *Ernest Hemingway*
A Guide for the Perplexed: *E.F. Schumacher*
A Judge's Miscellany: *M. Hidayatullah*
A Midsummer Night's Dream: *William Shakespeare*
A Passage to England: *Nirad C. Chaudhury*
A Passage to India: *E.M. Forster*
A Personal Adventure: *Theodore H. White*
A Prisoner's Scrapbook: *L.K. Advani*
A Sense of Time: *H.S. Vatsyayan*
A Spaniard in the Works: *John Lennon*
A Tale of Two Cities: *Charles Dickens*
A Thousand Days: *Arthur M. Schlesinger*
A View from Delhi: *Chester Bowles*
A Village by the Sea: *Anita Desai*
A Voice for Freedom: *Nayantara Sahgal*
A Week with Gandhi: *Louis Fischer*
A Woman's Life: *Guy de Maupassant*
Adam Bede. *George Eliot*

Shakespeare in China

Othello's entry is heralded by four clowns who leap onto the stage doing somersaults to the beating of drums in the background.

Iago woos Desdemona using acrobatic techniques of the opera.

In The Merchant of Venice, *Shylock's religious background is deleted along with the conflicts between different nationalities.*

This is the presentation of Shakespeare's plays — Chinese style.

China, which held its first Shakespeare festival in April, 1986 staged 16 of the dramatist's 37 plays with their structure altered to suit local tastes.

The colourful blending of east and west can be seen in the staging of Shakespeare's productions as Chinese theatrical techniques are used to meet the tastes of the Chinese audience, says a Chinese news magazine.

The Chinese touch is most discernible in the fact that the structure of Shakespeare's play, usually a labyrinth of plots and sub-plots, is changed to tell a single story in chronological order.

However, not all of Shakespeare's plays are adopted into local Chinese operas. The Merchant of Venice *was changed into a romantic comedy which opens with young men and women boating and singing on a rippling lake. The movement of the boat is illustrated by the actors and actresses paddling their feet.*

In the staging of A Winter's Tale, the curtains went up as an actor dressed as Shakespeare appeared on the stage and said: "Real art transcends national boundaries and can arouse sympathy in every human heart... I belong not only to the British people but also to you, my Chinese friends. I would like my works to be flowers in the splendid garden of Chinese opera".

Adhe Adhure: *Mohan Rakesh*
Adventures of Tom Sawyer, Adventures of Huckleberry Finn: *Mark Twain (Samuel Langhorne Clemens)*
Adventures of Sherlock Holmes: *Arthur Con Doyle*
Advise and Consent: *Allen Drury*
Affluent Society: *John Kenneth Galbraith*
Age of Reason: *Jean Paul Sartre*
Agni Veena: *Kazi Nazrul Islam*
Agony and the Ecstasy: *Irving Stone*
Airport: *Arthur Hailey*
Akbarnama: *Abul Fazal*
Alice in Wonderland: *Lewis Carroll*
All's Well that Ends Well: *William Shakespea*
All Quiet on the Western Front: *Erick Ma Remarque*
All the President's Men: *Carl Bernstein & I Woodward*
All the Prime Minister's Men: *Janardan Thal*
All Things Bright and Beautiful: *James Herri*
Amar Kosh: *Amar Singh*
An American Tragedy: *Theodore Dreiser*
An Autobiography: *Jawaharlal Nehru*
An Eye to China: *David Selbourne*
An Idealist View of Life: *Dr. S. Radhakrishna*
An Unknown Indian: *Nirad C. Choudhury*
Anandmath: *Bankim Chandra Chatterjee*
And Quiet Flows the Don: *Mikhail Sholokho*
Androcles and the Lion: *George Bernard Sh*
Animal Farm: *George Orwell*
Anna Karenina: *Leo Tolstoy*
Answer to History: *Mohammad Reza Pahlav*
Antony and Cleopatra: *William Shakespeare*
Ape and Essence: *Aldous Huxley*
Apple Cart: *George Bernard Shaw*
Area of Darkness: *V.S. Naipaul*
Arms and the Man: *George Bernard Shaw*
Around the World in Eighty Days: *Jules Ver*
Arrangement, The: *Elia Kazan*
Arrowsmith: *Sinclair Lewis*
As You Like It: *William Shakespeare*
Asia and Western Dominance: *K. M. Panikka*
Asian Drama: *Gunnar Myrdal*
August 1914: *Alexander Solzhenitsyn*
Autobiography of an Unknown Indian: *Nirad Choudhury*
Autumn Leaves: *O. Pulla Reddi*

Babbit: *Sinclair Lewis*
Back to Methuselah: *George Bernard Shaw*
Bandicoot Run: *Manohar Malgonkar*
Bangladesh: The Unfinished Revolution: *Lawrence Lifschultz*
Banyan Tree, The: *Hugh Tinker*
Beast and Man: *Murry Midgley*
Beginning of the Beginning: *Bhagwan Sri Rajne*
Ben Hur: *Lewis Wallace*
Bermuda Triangle: f26Berlitz
Best and the Brightest, The: *David Halberstar*
Beyond Modernisation, Beyond Self: *Sisirkum Ghose*

Esperanto is 100

When 6,000 people from 60 countries gathered in Warsaw on July 26, 1987 to celebrate their movement's centenary year, they did not need any translators.

Instead, they all spoke the same language: Esperanto.

Esperanto is the international language invented by an idealistic young doctor, Ludwik L. Zamenhof, who published the first Esperanto handbook in Warsaw on July 26, 1887 with the hope that it would break down communication barriers between nations.

Since then, Esperantists have been ridiculed as cranks, persecuted by Nazis and Stalin and we have seen English emerge as the universal language in world commerce and other fields.

Still, the language has survived and even achieved a modest success. About 15 million people worldwide are believed to have some knowledge of the language.

On July 26, Esperantists the world over said "Gratulon pro la centa datreveno de Esperanto." Roughly translated: "Happy 100th birthday, Esperanto."

"That Esperanto has survived 100 years without the political and economic support of any government is a big success," said Simo Milojevic, the Yugoslav director-general of the UEA — Universal Esperanto Association.

Esperanto is a hotpotch of Latin (60 per cent) Greek, German and other languages. It has a phonetic spelling, each letter of the Roman alphabet stands for only one sound and grammar has been simplified to 10 basic rules and no irregularities. The only country where it is taught at college level is in some places in the U.S. and interestingly enough, China. Every year some 200 books are translated into Esperanto, and occasionally there is an original work such as a recent Esperanto play written by an Englishman, Mr. Harold Broun, and which was enacted by a Franco Bulgarian theatre group. However, computer technology might come to the rescue of Esperanto and give it a much needed fillip. It has been discovered that Esperanto is a very useful bridge in translating one language into another because it cuts out confusion between meaning and implication. This would facilitate high speed translations by computers. A Dutch computer company is now developing the software (using Esperanto) and plans to market it in [illegible].

It is claimed that the universal language is taught in 625 schools throughout the world and there are some magazines and books which are published in Esperanto. European radio stations broadcast monthly programmes in the language. The play The Importance Of Being Earnest *is being staged in Esperanto in Britain, where the Liverpool university has a lectureship in the language. The University College London runs a degree course.*

Bharat Bharati: *Maithili Saran Gupta*
Big Fisherman, The: *Lloyd Douglas*
Biographia Literaria: *Samuel Taylor Coleridge*
Black Wednesday: *Pramila Kalhan*
Blind Ambitions: *John Dean*
Blind Beauty: *Boris Pasternak*
Bliss was it in that Dawn: *Minoo Masani*
Bloodline: *Sidney Sheldon*
Born Free: *Joy Adamson*
Bread, Beauty and Revolution: *Khwaja Ahmad Abbas*
Breakthrough: *Gen. Moshe Dayan*
Bride's Book of Beauty, The: *Mulk Raj Anand*
Brothers Karamazov: *Fyodor Dostoevsky*
Bubble, The: [illegible]
Butterfield 8: *John O'Hara*
By Love Possessed: *James Gould Cozzens*

Caesar and Cleopatra: *George Bernard Shaw*
Cancer Ward: *Alexander Solzhenitsyn*
Candida: *George Bernard Shaw*
Candide: *Voltaire*
Canterbury Tales: *Geoffrey Chaucer*
Cardinal, The: *Henry Morton Robinson*
Centennial: *James A. Michener*
Chandalika: *Rabindranath Tagore*
Chemmeen: *Thakazhi Sivasankara Pillai*
Cherry Orchard: *Anton Chekhov*

Chesapeake: *James A. Michener*
Chidambara: *Sumitranandan Pant*
Childe Harold: *Lord Byron*
China's Watergate: *Leo Goodstadt*
Chinese Betrayal: *B.N. Malik*
Chitra: *Rabindra Nath Tagore*
Chithirappaavai: *P.V. Akilandam*
Choma's Drum: *K. Shivaram Karanth*
Chronicle of a Death Foretold: *Gabriel Garcia Marquez*
Class, The: *Erich Segal*
Climate of Treason: *Andrew Boyle*
Comedy of Errors: *William Shakespeare*
Common Sense: *Thomas Paine*
Communist Manifesto: *Karl Marx*
Confessions: *Jean Jacques Rousseau*
Confessions of a Lover: *Mulk Raj Anand*
Confessions of an Opium Eater, The: *Thomas Dequincey*
Confidential Clerk: *T.S. Eliot*
Conquest of Self: *Mahatma Gandhi*
Continent of Circe: *Nirad C. Choudhury*
Coolie: *Mulk Raj Anand*
Count of Monte Cristo: *Alexander Dumas*
Coup, The: *John Updike*
Court Dancer, The: *Rabindra Nath Tagore*
Coverley Papers: *Joseph Addison*
Crescent Moon: *Rabindra Nath Tagore*
Crime and Punishment: *Feodor Dostoyevsky*
Crisis in India, The: *Ronald Segal*
Crisis into Chaos: *E.M.S. Namboodiripad*
Cry My Beloved Country: *Alan Paton*
Culture in the Vanity Bag: *Nirad C. Choudhury*
Curtain Raisers: *K. Natwar Singh*

Darkness at Noon: *Arthur Koestler*
Dark Room, The: *R.K. Narayan*
Das Kapital: *Karl Marx*
David Copperfield: *Charles Dickens*
Dean's December, The: *Saul Bellow*
Death of a City: *Amrita Pritam*
Death of a Patriot: *R.E. Harrington*
Death of a President: *William Manchester*
Debacle: *Emile Zola*
Decameron: *Giovanni Boccaccio*
Decline and Fall of the Roman Empire: *Edward Gibbon*
Decline and Fall of Indira Gandhi: *D. R. Mankekar & Kamala Mankekar*
Democracy means Bread and Freedom: *Piloo Mody*
Democracy Redeemed: *V.K. Narasimhan*
Descent of Man: *Charles Darwin*
Deserted Village: *Oliver Goldsmith*
Devdas: *Sharat Chandra Chatterjee*
Dilemma of Our Time: *Harold Joseph Laski*
Diplomacy in Peace and War: *T.N. Kaul*
Discovery of India: *Jawaharlal Nehru*
Distant Drums: *Manohar Malgonkar*
Divine Comedy: *Alighieri Dante*
Divine Life: *Swami Sivananda*
Doctor's Dilemma: *George Bernard Shaw*
Dr. Jekyll and Mr. Hyde: *Robert Louis Stevens*
Dr. Zhivago: *Boris Pasternak*
Don Juan: *Lord Byron*
Don Quixote: *Miguel de Cervantes*
Durgesh Nandini: *Bankim Chandra Chatterji*
Dynamics of Social Change: *Chandra Shekha*

Earth: *Emile Zola*
Economic Planning of India: *Asok Mehta*
Economics of the Third World: *S.K. Ray*
Education of Public Man, The: *Hubert Humph*
Elegy written in a Country Churchyard: *Thon Gray*
Emma: *Jane Austen*
Ends and Means: *Aldous Huxley*
Envoy to Nehru: *Escott Reid*
Essays for Poor to the Rich: *John Kenneth Galbra*
Essays of Elia: *Charles Lamb*
Essays on Gita: *Sri Aurobindo Ghosh*
Eternal Himalayas: *Major H.P.S. Ahluwalia*
Executioner's Song: *Norman Mailer*
Expanding Universe: *Arthur Stanley Eddingt*
Experiments with Untruth: *Michael Henders*
Eye of the Storm, The: *Patrick White*

Face to Face: *Lasse & Mrs. Lisa Berg*
Faces of Everest: *Major H.P.S. Ahluwalia*
Family Reunion: *T.S. Eliot*
Far from the Madding Crowd: *Thomas Hard*
Far Pavilions, The: *M.M. Kaye*
Faraway Music, The: *Svetlana Alliluyeva*
Farewell the Trumpets: *James Morris*
Farewell to Arms: *Ernest Hemingway*
Farm House: *George Orwell*
Father and Sons: *Ivan Turgenev*
Faust: *J.W. Von Goethe*
Fidelio: *L. Beethoven*
Fifth Horseman, The: *Larry Collins & Dominiq Lapierre*
Final Days, The: *Bob Woodward & Carl Bernst*
Finding a Voice—Asian Women in Britain: *A Wilson*
Fire Next Time, The: *James Baldwin*
First Circle: *Alexander Solzhenitsyn*
Flames from the Ashes: *P.D. Tandon*
Flounder, The: *Gunter Grass*
Food, Nutrition and Poverty in India: *V.K.R.V.*
For Whom the Bell Tolls: *Ernest Hemingway*
Forbidden Sea, The: *Tara Ali Baig*
Forsyth Saga: *John Galsworthy*
Fortynine Days: *Amrita Pritam*
Freedom at Midnight: *Larry Collins & Dominiq Lapierre*
French Revolution: *Thomas Carlyle*
Friends and Foes: *Sheikh Mujibur Rahman*
From India to America: *S. Chandrasekhar*

Ganadevata: *Tara Shankar Bandopadhyaya*
Gandhi and Stalin: *Louis Fisher*
Gardener: *Rabindra Nath Tagore*

Desktop Publishing Grows

Desktop publishing is a technology that allows people with a personal computer to design and produce documents that look almost as though they have been typeset professionally.

Desktop publishing, barely four years old, is starting to transform the field of publishing by opening it to a great many people who could not have afforded to publish before. Enthusiasts see the change as the latest example of how computer technology is extending power from a relative handful of major publishing institutions, such as the newspapers, book publishers to a broader assortment of individual voices.

Desktop publishing requires a personal computer, a laser printer and software for word processing, charts or drawings if desired and desktop publishing applications such as layout. Getting started can cost as little as $ 2,000 (about Rs. 25,000). A laser printer costs at least another $ 2,000 but such printers are now in many copy shops.

The flowering of home publishers poses no threat to the major institutions. By lowering the cost of publishing, the technology allows a great diversity of publications aimed at narrower interests to spring up.

Already, desktop publishing is allowing small nonprofit groups and underfinanced political campaigns to produce publications that look as fancy as those of well-heeled organizations.

The technology is also being used extensively within corporate offices and by small businesses to produce everything from office memos and technical manuals to brochures and business forms, posters and menus.

As the technology spreads, it will raise the standard of an acceptable document. In the future, a letter or report that is typewritten, instead of typeset, will be considered shoddy.

Desktop publishing does not replace the traditional printing press, but merely auto-

mates typesetting and page layout. Those functions normally involve expensive typesetting equipment and the cutting and pasting of columns of type onto dummy pages, which are photographed to make plates for the printing press.

With a personal computer, text can be set in neat columns in virtually any size and style. The layout, including text and graphics, can be done on the computer screen. The laser printer prints out a copy of the page that can be sent to printer. For small batches, the page can be duplicated on a photocopier.

The use of personal computers for layout and typesetting began in 1985 in the U.S., when Apple Computer Inc. introduced its laser printer. So far, Apple's Macintosh personal computer and laser printer have been the [illegible] used for desktop publishing, [illegible] nology has been responsible [illegible] increase in Apple's sales

Gathering Storm: *Winston Churchill*
Ghasiram Kotwal: *Vijay Tendulkar*
Gitanjali: *Rabindra Nath Tagore*
Glimpses of World History: *Jawaharlal Nehru*
Godan: *Prem Chand*
Godfather, The: *Mario Puzo*
Golden Threshold: *Sarojini Naidu*
Gone with the Wind: *Margaret Mitchel*
Good Earth: *Pearl S. Buck*
Grammar of Politics: *Harold Joseph Laski*
Grapes of Wrath: *John Steinbeck*
Great Challenge, The: *Louis Fischer*
Great Expectations: *Charles Dickens*
Great Gatsby: *F. Scott Fitzgerald*
Great Tragedy: *Z.A. Bhutto*
Guide: *R.K. Narayan*
Gulag Archipelago: *Alexander Solzhenitsyn*
Gulliver's Travels: *Jonathan Swift*

Hamlet: *William Shakespeare*
Heat and Dust: *Ruth Prawer Jhabvala*
Heir Apparent: *Dr. Karan Singh*
Heroes and Hero Worship: *Thomas Carlyle*
Himalayan Blunder: *Brigadier J.P. Dalvi*
Hindu View of Life: *Dr. S. Radhakrishnan*
Hinduism: *Nirad C. Choudhury*
House Divided: *Pearl S. Buck*
Human Factor: *Graham Greene*
Humboldt' Gift, The: *Saul Bellow*
Hunchback of Notre Dame: *Victor Hugo*
Hungry Stones: *Rabindra Nath Tagore*

I follow the Mahatma: *K.M. Munshi*
Idiot, The: *Feodor Dostoyevsky*
Idols: *Sunil Gavaskar*
If I am Assassinated: *Z.A. Bhutto*
Importance of Being Earnest: *Oscar Wilde*
In Evil Hour: *Gabriel Garcia Marques*
In Memoriam: *Alfred Lord Tennyson*
In Search of Gandhi: *Richard Attenborough*
In Search of Identity: *Anwar el-Sadat*
India, The Critical Years: *Kuldip Nayar*
India Changes: *Taya Zinkin*
India Discovered: *John Keay*
India Divided: *Rajendra Prasad*
India of Our Dreams: *M V Kamath*
India Remembered: *Percival & Margaret Spear*
India Wins Freedom: *Abdul Kalam Azad*
Indian Philosophy: *Dr. S Radhakrishanan*
India's China War: *Neville Maxwell*
India's Priceless Heritage. *N.A. Palkhivala*
Indira Gandhi's Emergence and Style: *Nayantara Sahgal*
Indira's India: *S. Nihal Singh*
Inside Asia, Inside Europe, Inside Africa, etc *John Gunther*
Intimacy: *Jean Paul Sartre*
Invisible Man: *H.G. Wells*
Isabella: *John Keats*
Islamic Bomb: *Stev Weissman & Herbert Krousney*
Island in the Streams: *Ernest Hemingway*

Is Paris Burning?: *Larry Collins & Dominique Lapierre*
Ivanhoe: *Sir Walter Scott*
Jane Eyre: *Charlotte Bronte*
Jean Christopher: *Romain Rolland*
Jobs for the Millions: *V.V. Giri*
Julius Caesar: *William Shakespeare*
Jungle Book: *Rudyard Kipling*

Kayar: *Thakazhi Sivasankara Pillai*
Kagaz Te Kanwas: *Amrita Pritam*
Kamayani: *Jai Shankar Prasad*
Kamasutra. *Vatsyayana*
Kanthapura: *Raja Rao*
Kapal Kundala: *Bankim Chandra Chatterjee*
Kenilworth: *Sir Walter Scott*
Kidnapped: *Robert Louis Stevenson*
Kim: *Rudyard Kipling*
King of Dark Chamber: *Rabindra Nath Tagore*
King Lear: *William Shakespeare*
Kissinger Years, The: *T.N. Kaul*
Kore Kagaz: *Amrita Pritam*
Kubla Khan: *Samuel Taylor Coleridge*

Lady Chatterley's Lover: *D.H.Lawrence*
Last Days of Pompeii: *Edward George Lytton*
Laws Versus Justice: *V. R. Krishna Iyer*
Last Maharaja, The: *Jean Louis Nou & Jacque Pouchepadass*
Last Things: *C.P. Snow*
Lead Kindly Light: *Vincent Shean*
Leaders: *Richard Nixon*
Leaves of Grass: *Walt Whitman*
Le Contract (Social Contract): *J.J. Rousseau*
Les Miserables: *Victor Hugo*
Letters From the Field: *Margaret Mead*
Leviathan: *Thomas Hobbes*
Life Divine: *Sri Aurobindo*
Life of Dr. Johnson: *James Boswell*
Lolita: *Vladimir Nabakov*
Lost Honour: *John Dean*
Love Story: *Erich Segel*

Macbeth: *William Shakespeare*
Magic Mountain: *Thomas Mann*
Main Street: *Sinclair Lewis*
Major Barbara: *George Bernard Shaw*
Making of a Midsummer Night's Dream, The *David Selbourne*
Man and Superman: *George Bernard Shaw*
Man Eaters of Kumaon: *Jim Corbett*
Man of Destiny: *George Bernard Shaw*
Mankind and Mother Earth: *Arnold Toynbee*
Many Worlds: *K.P.S. Menon*
Marriage and Morals: *Bertrand Russel*
Masters, The: *C.P. Snow*
Maurice: *E.M Forster*
Mayor of Casterbridge: *Thomas Hardy*
Mein Kampf: *Adolf Hitler*
Memories of Hope: *Gen. Charles de Gaulle*
Men Who Killed Gandhi, The: *Manohar Mal gonkar*

Keep Going, Write On and On...

William Golding

While I have been described variously as a philosopher, historian and psychologist I consider myself primarily a story-teller. I am fascinated with the perennial power exerted by the story on the human psyche.

If you sit a child upon your knee and begin, 'Once upon a time....', you know that you have got him.

I am still haunted by the phrase, 'original sin.' but I also believe in 'original virtue'. But why have people reading my books chosen only to pick on my concern with original sin? I do believe that there is original virtue too. Man is created with the knowledge of both the good and the evil and has a capacity to do either.

The Lord of the Flies *came out of my own reaction to the Second World War. It was not so much what happened in the war as finding out after the war what people had done to each other that disturbed me. The dominant emotion behind the* "Lord of the Flies" *is grief. It is a picture of what human society is really like.*

I was sitting by the fire in my country cottage reading one of the books Coral Island *or* Treasure Island. *And I thought that it was extraordinary how in these books, boys cast ashore on islands seemed to behave like perfect angels. So I thought, wouldn't it be a good idea to write a book about boys on an island behaving as boys really would?*

The dominant presence in my writing has been the sea. I spend hours gazing at the sea and to me the sea is not a single image but represents the depths of human consciousness.

The literary form nearest to my heart would probably be the Greek tragedy. Many of the stories might have taken the form of a Greek tragedy. It has two elements in it-it has relatively simple characters. You never find complicated, psychological studies there. Second, they have a simple structure as the tension builds up throughout the play until the final catastrophe.

Good writers are born and not made. Some sort of writers could be made too. They would, however, be pedestrian. There would be no spark in them.

It is hard to describe inspiration I myself write only when I get an idea. My books are written under the shadow of an idea.

Symbols should be an intrisic part of the story. When I used the symbol of the conch shell in Lord of Flies *I was not aware of its religious symbol in India. It came right out of my unconscious. Symbols are not something to be interpolated into the story later like the participant at a writer's workshop did.*

My message to the aspiring young writers: Keep going. Write on and on Never stop. Never give up.

(Excerpts from speeches made in India Mr. Godling who won the Nobel Prize for Literature in 1983 visited India during January 1987)

Merchant of Venice The: *William Shakespeare*
Middle Ground, The: *Margaret Drabble*
Middle March: *George Eliot*
Midnight's Children: *Salman Rushdie*
Mill on the Floss: *George Eliot*
Miser, The: *Moliere*
Moby Dick: *Hermann Melville*
Moon and Six Pence: *W. Somerset Maugham*
Moonlight Sonata: *L.B Beethoven*
Mother: *Maxim Gorky*
Mother India: *Katherine Mayo*
Mrs Gandhi's Second Reign: *Arun Shourie*
Much Ado About Nothing: *William Shakespeare*
Murder in the Cathedral: *T. S. Eliot*
My Days: *R.K. Narayan*
My Experiments with Truth: *Mahatma Gandhi*
My India: *S. Nihal Singh*
My Life and Times: *V.V. Giri*
My Own Boswell: *M. Hidayatullah*
My Struggles: *E.K. Nayanar*
My Truth: *Indira Gandhi*
Naked Face, The: *Sidney Sheldon*
Nana: *Emile Zola*
New Dimensions of India's Foreign Policy: *Atal Behari Vajpayee.*
Nineteen Eighty Four: *George Orwell*
Nisheeth: *Uma Shankar Joshi*

O' Jerusalem: *Larry Collins & Dominique Lapierre.*
Odakkuzhal: *G. Shankara Kurup*
Of Human Bondage: *W. Somerset Maugham*
Old Man and the Sea: *Ernest Hemingway*
Oliver Twist: *Charles Dickens*
Oliver's Story: *Erich Segal*
One day in the Life of Ivan Denisovich: *Alexander Solzhenitsyn*
One Hundred Years of Solitude: *Gabriel Garcia Marquez*
One World. *Wendell Wilkie*
One World and India: *Arnold Toynbee*
One World to Share: *Shridhath Ramphal*
Origin of Species: *Charles Darwin*
Oru Desathinte Katha: *S.K. Pottekkatt*
Othello: *William Shakespeare*
Other Side of Midnight, The: *Sidney Sheldon*
Our Films Their Films: *Satyajit Ray*

Painted Veil: *W Somerset Maugham*
Painter of Signs: *R.K. Narayan*
Pakistan Cut to Size: *D.R. Mankekar*
Pakistan, The Gathering Storm: *Benazir Bhutto*
Panchatantra: *Vishnu Sharma*
Paradise Lost: *John Milton*
Pather Panchali: *Bibhuti Bhushan Banerjee*
Peter Pan: *J.M. Barrie*
Pickwick Papers: *Charles Dickens*
Pilgrim's Progress: *John Bunyan*
Portrait of India: *Ved Mehta*
Post Office: *Rabindra Nath Tagore*
Power and Glory: *Graham Greene*
Power That Be, The: *David Halberstan*
Prathama Pratishruti: *Ashapurna Devi*
Prelude: *William Wordsworth*
Price of Power: Kissinger in the Nixon White House: *Seymour M. Hersh*
Pride and Prejudice: *Jane Austen*
Prince: *Niccolo Machiavelli*
Prison Diary: *Jayaprakash Narayan*
The Prisoner of Zenda: *Anthony Hope*
Promises to Keep: *Chester Bowles*
Prussian Nights: *Alexander Solzhenitsyn*
Pygmalion: *George Bernard Shaw*

R Document, The: *Irving Wallace*
Rage of Angels: *Sidney Sheldon*
Ragtime: *E.L. Doctorow*
Rain King, The: *Saul Bellow*
Rangbhoomi: *Prem Chand*
Rape of Bangladesh: *Anthony Mascarenhas*
Rape of the Lock: *Alexander Pope*
Rebel, The: *Albert Camus*
Rebirth: *Leonid Brezhnev*
Red and Black, The; *Stendhal*
Red Badge of Courage: *Stephan Crane*
Red Star Over China: *Edgar Snow*
Reflections on the French Revolution: *Edmund Burke*
Return of the Native, The: *Thomas Hardy*
Riding the Storm: *Harold MacMillan*
Rights of Man: *Thomas Paine*
Robe, The: *Lloyd C. Douglas*
Robinson Crusoe: *Daniel Defoe*
Romeo and Juliet: *William Shakespeare*
Rubaiyat-i Omar Khayyam: *Edward Fitzgerald*

Saket: *Maithili Sharan Gupta*
Sanctuary: *William Faulkner*
Scarlet Letter: *Nathaniel Hawthorne*
Seven Lamps of Architecture: *John Ruskin*
Seven Summers: *Mulk Raj Anand*
Shadow from Ladakh: *Bhabani Bhattacharya*
Shape of Things to Come: *H.G. Wells*
She Stoops to Conquer: *Oliver Goldsmith*
Ship of Fools: *Katherine Anne Porter*
Shoes of the Fisherman, The: *Morris L. West*
Six Characters in Search of an Author: *Luigi Pirandello*
Small Land: *Leonid Brezhnev*
Sohrab and Rustam: *Mathew Arnold*
Songs of India, The: *Sarojini Naidu*
Sons and Lovers: *D.H. Lawrence*
Sound and Fury, The: *William Faulkner*
Spirit of the Age: *William Hazlitt*
Story of a Real Man: *Nikolayev Polevoi*
Story of My Experiments with Truth: *M. K. Gandhi*
Story of My Life: *Mosbe Dayan*
Strangers and Brothers: *C.P. Snow*
Sunny Days: *Sunil Gavaskar*
Swami and Friends: *R.K. Narayan*
Sword and the Sickle: *Mulk Raj Anand*

Talisman: *Sir Walter Scott*
Tarzan of the Apes: *Edgar Rice Burroughs*

Tempest: *William Shakespeare*
Thank You, Jeeves: *P.G. Wodehouse*
Thirteenth Sun, The: *Amrita Pritam*
Thorn Birds: *Colleen McCullough*
Through the Indian Looking Glass: *David Selbourne*
Thus Spake Zarathustra: *Friedrich Wilhelm Nietzsche*
Time Machine: *H.G. Wells*
Tom Jones: *Henry Fielding*
Treasure Island: *Robert Louis Stevenson*
Trial, The: *Franz Kafka*
Trinity: *Leon Uris*
Tropic of Cancer: *Henry Miller*
Tryst with Destiny: *S. Gopalan*
Twelfth Night: *William Shakespeare*
Two Faces of Indira Gandhi: *Uma Vasudev*
Two leaves and a Bud: *Mulk Raj Anand*
Two Women: *Alberto Moravia*

Ulysses: *James Joyce*
Uncle Tom's Cabin: *Harriet Beecher Stowe*
Unto The Last: *John Ruskin*
Untold Story: *General B.M. Kaul*
Utopia: *Thomas Moore*

Valley of Dolls: *Jacqueline Susann*
Vanity Fair: *William Thackeray*
Vendor of Sweets, The: *R.K. Narayan*
Vicar of Wakefield: *Oliver Goldsmith*
Voice of Conscience: *V.V. Giri*

Waiting for Godot: *Thomas Becket*
Wake Up India: *Annie Besant*
War and Peace: *Leo Tolstoy*
Waste Land: *T.S. Eliot*
Way of all Flesh: *Samuel Butler*
Wealth of Nations: *Adam Smith*
We Indians: *Khushwant Singh*
Westward Ho: *Charles Kingsley*
Where the Grass is Greener: *David M. Smith*
White House Years: *Dr. Henry Kissinger*
Without Fear or Favour: *Harison E Salisbury*
Witness to an Era: *Frank Moraes*
Wuthering Heights: *Emily Bronte*

Yayati: *V.S. Khandekar*
Year of the Upheaval: *Henry Kissinger*
Yesterday and Today: *K.P.S. Menon*

Zulfi, My friend: *Piloo Mody*

THE SUPERLATIVES

The Superlatives are broadly classified into the Human World, the Natural World and the Scientific World. Man's achievements on the Earth and in outer space are also highlighted.

Human World

Tallest Man recorded: Robert Pershing Wadlow (1918-40) born at Alton, Illinois, USA; 272 cm (8 ft 11.5 in).

Tallest Living Man: Gabriel Estevao Monjane, born 1944, Mozambique. 8 ft 0¾ in (245.7 cm) (The Pakistani Mohamed Aalam Channa's claim to this honour proved to be a tall claim.)

Tallest Woman recorded: Zeng Jinlian (pronounced San Chung Lin) (964-82) of China. 247 cm (8 ft 1 in).

Tallest Living Woman: Sandy Allen of Canada: 271.7 cm (7 ft 7¼ in). She now weighs 462 lb (210 kg).

Heaviest Man: Jon Brower Monnoch (1741-83), Washington, USA. He weighed 635 Kg (1400 lb).

Heaviest Woman: Percy Pearl of Washington, USA (1926-1972). 399 kg (880 lb).

Oldest Man ever lived (Authenticated): Shigechiyo Izumi, Japan (1865-1983). Born on June 29, 1865, he was recorded as a 6-year-old in Japan's first census of 1871. He died at the age of 118.

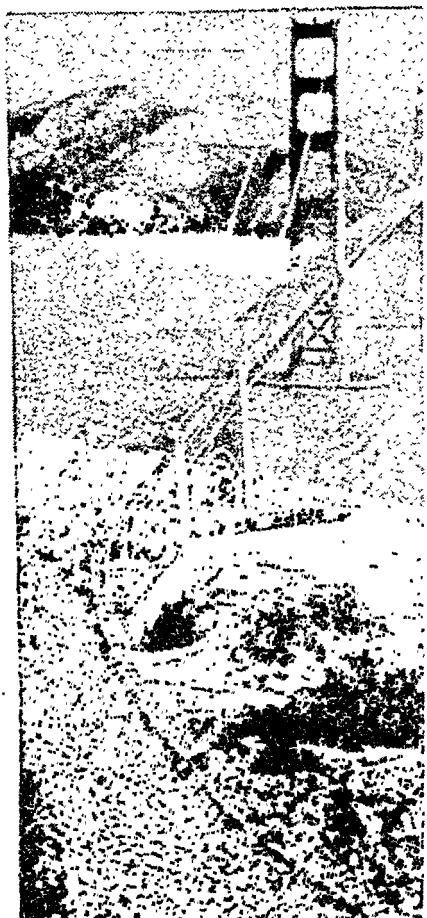
Most Children: The greatest officially recorded number of children produced by a mother is 69 by the first of the two wives of Feodor Vassilyev (1707-1782) of USSR. In 27 confinements she gave birth to 16 pairs of twins, 7 sets of triplets and 4 sets of quadruplets.

Most Prolific Mother (living). Leontina Albina (b. 1925), Chile. She was reported to be pregnant in Nov. 1980 having already produced 44 children.

First Siamese Twins: Chang and Eng Bunker (Known in Thailand as Chan and In) born at Meklong on May 11, 1811 of Chinese parents. They died within three hours of each other on Jan. 17, 1874, aged 62.

First Test Tube Baby. Louise Brown (5 lb 12 oz) (2.6 kg) was delivered by caesarian section of Lesley Brown, 31, in Oldham General Hospital, Lancashire, England at 11 47 p m on July 25, 1978.

First Human Heart Transplant Was performed on Louis Washkansky, 55, at the



Birthday Celebration: On May 27, 1987 about 3.5 lakh citizens of the U.S. in the City of San Francisco walked across the Golden Gate Bridge to celebrate the 50th anniversary. Five decades ago, the first birthday of the bridge, an engineering marvel in the world, was celebrated by thousands walking across.

Groote Schuur Hospital, Cape Town, S. Afri on Dec. 3, 1967 by a team of 30 led by Pr Christian Neethling Barnard. The donor w Miss Denise Ann Darvall, aged 25. Washkans died on Dec. 21, 1967.

First Artificial Heart: Dr. Burney B. Clark, (of Wisconsin, USA received the first artific heart on Dec 1-2, 1982 at the Utah Medic Centre, Salt Lake City, Utah. The Surgeon w Dr. William C de Vries. The heart was a mark Jarvik 7 designed by Dr. Robert Jarvik. I Clark died on March 23, 1983, 112 days late

Natural World

Largest and Heaviest Animal: The Blue (Sulpher-bottom Whale. The largest specim ever recorded was a female landed at Falklar Islands, in 1904. She measured 33.58 m (110 2.5 in) in length. Another female measurir 27.6 m (90 ft 6 in) was caught in the Souther Ocean by the Soviet 'Slava' whaling fleet o March 20, 1947. It weighed 190 tonnes.

Tallest Living Animal: the Giraffe, no found only in the dry savannah and sem desert areas of Africa. The tallest ever r corded was a Masai bull named 'Georg received at Chester Zoo, England on Jan. 1959, from Kenya. His horns almost touche the roof of the 20 ft (6.09 m) high Giraff House when he was 6 years old. George die on July 22, 1969.

Fastest Moving Animal: The Peregrine Fa con, which has been timed electronically a 350 km/h (217 m/h) in 1963 in Germany whil making a scoop at a 45° angle of descent. Th fastest bird in level flight is the white-throate Spinetail Swift of Asia. In 1942 air speed upt 171 km/h (106.25 m/h) was recorded for thi species in the USSR.

Largest Living Animal: The African bush elephant. The average adult bull stands 10 ft (in (3.2 m) at the shoulder and weighs 5.7 tonnes. The largest specimen ever recorded was a bull shot in Southern Angola on Nov. 7, 1974. It had a height of 13 ft (3.96 m).

Fastest Land Animal over short distance (ie upto 60 yd (549 m): The Cheetah or Hunting Leopard of the plains of East Africa, Iran, Turkmenia and Afghanistan, with a probable maximum speed of 60-63 m/h (95-101 km/h) over suitably level ground.

Tallest Tree: The redwood near the coast of

California. The tallest measured example is the 'Tallest Tree' in Red Wood Creek Grove, Humboldt County, California, discovered in 1963. It is 367.8 ft (112.1 m) tall and has a girth of 43 ft 11 in (13.38 m).

Most Massive Tree: Giant Sequoia named the 'General Sherman' standing 272 4 ft (83.02 m) tall in the Sequoia National Park, California It has a girth of 79.8 ft (24.32 m) above the ground. This tree has been estimated to contain the equivalent of 600,120 board feet of lumber sufficient to make 5,000,000,000 matches.

Most Massive Tree Canopy. The Great Banyan tree (Ficus bengalensis) in the Indian Botanical Garden, Calcutta. It has some 1,000 subsidiary trunks formed from aerial roots. It covers some 4 acres (1.6 ha) and is believed to date from c. 1770.

Largest Forest: The vast coniferous forests of the northern USSR lying mainly between latitude 55°N, and the Arctic Circle. The total wooded area amounts to 2,700,000,000 acres or 1100 million ha (25 percent of the world's forests), of which 38 percent is Siberian larch.

Largest Park: The Wood Buffalo National Park in Alberta, Canada established in 1922 has an area of 11,172,000 acres (17,560 sq miles or 4548 sq km)

Greatest Rainfall (24 hrs): 73.62 in or 1870 mm Cilaos La Reunion, Indian Ocean, March 15-16-1952. Greatest Rainfall (Calendar month): 366.14 in or 9299 mm, Chirapunji, Meghalaya, India in July 1861 Greatest Rainfall (12 months): 1041.78 in (26,461 mm) Cherapunji, Meghalaya, India, 1-8-1860–31-7-1861

Maximum Sunshine: 97 percent (over 4300 hrs), eastern Sahara, annual average. Hottest place: (Annual mean): Dallol, Ethiopia: 94° F or 34.4 C (1960-66).

Longest Drought: c. 400 years to 1971. Desierto de Atacama, Chile.

Coldest Place (Extrapolated Annual Mean): Polus Nedostupnosti, pole of Cold (78° S (96°E), Antarctica, -72°F or -57.8°C. Coldest measured mean: -70°F or -56.6°C. Plateau Station, Anarctica. Wettest place (Annual Mean): Mt.Wai-ale-ale (5148 ft (1569 m) in Kauai, Hawaii, 451 in (11455 mm), average 1920-72. In 1948, 621 in (15773 mm).

Largest Ocean: the Pacific; representing 45.8 per cent the World's Oceans it covers an area

Jarvik Heart for Brainy Belle

Dr Robert Jarvik

The bride was billed as the most intelligent person in the world She was given away by a science fiction writer on Sunday August 23, 1987 to the inventor of the Jarvik artificial heart

The guest list at the New York wedding of Dr Robert Jarvik, 41, and Marilyn vos Savant, 40, included some of more than 60 recipients of the Jarvik heart, which has been used to keep transplant patients going while they await a suitable donor heart from another human

The new Mrs Jarvik is listed in the Guinness book of world records as having the world's highest IQ

The couple have rented an apartment in Park for a month-long honeymoon in September It was the groom's second wedding and the bride's first

of 64,186,000 sq miles or 166240000 sq km

Deepest part of Ocean: in the Marianas Trench in the Pacific Ocean; has a depth of 5968 fathoms (35,808 ft or 10914 m) or 6.78 miles (10.91 km).

Largest sea: the South China Sea with an area of 1,148,500 sq miles or 2974600 sq km.

Longest Straits: the Tatarskiy Proliv or Tartar Straits between Sakhalin Island and the USSR mainland, running from the Sea of Japan to Sakhalinsky Zaliv. This distance is 800 km or 497 miles-- thus marginally longer than the Malacca Straits.

Largest Gulf: the Gulf of Mexico, with an area of 580,000 sq miles or 1500,000 sq km, and a shoreline of 3100 miles or 4990 km from Cape Sable, Florida, to Cabo Catoche, Mexico.

Largest Bay: measured by shore-line length is Hudson Bay, Northern Canada, with a shoreline of 7,623 miles or 12268 km with an area of 317,500 sq miles or 822300 sq km. The area of Bay of Bengal is however 839,000 sq miles or 2,172,000 sq km.

Largest Land Mass: The Eurasian land with an area (including Islands) of 20733,000 sq miles or 53698,000 sq km.

Smallest Land Mass: the Australian Mainland with an area of 2,941,526 sq miles or 7,618,493 sq km which, together with Tasmania, New Zealand, New Guinea and the Pacific Islands is sometimes described as Oceania.

Largest Peninsula. Arabia with an area of 1,250,000 sq miles or 3,250,000 sq km.

Largest Island: Discounting Australia, which is usually recorded as a continental land mass, the largest island is Greenland (Re-named Kalaatdlit Nunaat, May 1, 1979), with an area of about 840,000 sq miles or 2175,000 sq km

Greatest Archipelago: 3,500-mile or 5600-km long crescents of more than 13,000 islands which form Indonesia.

Highest Mountain Peak. The Eastern Himalayan peak Mount Everest 29,028 ft or 8848 metre above sea level on the Tibet- Nepal border. The peak was named after Col. Sir George Everest (1790–1866), formerly Surveyor General of India.

Largest Lake (Inland Sea): the Kaspiskoye More (Caspian Sea) in the Southern USSR and Iran. It is 760 miles or 1225 km long and its total area is 360700 sq km or 13,900 sq miles

Largest Fresh Water Lake: Lake Superior one of the Great Lakes of N.America, has the greatest surface area in the world. Its total area is 31800 sq miles or 82350 sq. km. The fresh Water Lake with the greatest volume is the Baykal, in Siberia, USSR, with an estimated volume of 5,520 cubic miles or 23000 cubic km.

Largest Desert: The Sahara in N. Africa. At its greatest length it is 3200 miles or 5150 km from east to west. From North to South, it is between 800 and 1400 miles or 1275 and 2250 km. Area covered by the desert is about 3,250,000 sq miles or 8400000 sq km.

Highest Water Fall: Salto Angel Falls in Venezuela on a branch of the river Carrao. It has a total depth of 3,212 ft or 979 metres

Longest River: The two longest rivers in the World are Amazon, flowing into the South Atlantic and the Nile, flowing into the Mediterranean. Which is longer is more a matter of definition than simple measurement. The Amazon has a length of 4007 miles or 6448 km. The length of the Nile is 4145 miles or 6670 km. However, the length of these rivers vary if measured along different courses.

Scientific World

Largest Planet: Jupiter, with an equatorial diameter of 88,846 miles or 142,984 km and a polar diameter of 83,082 miles or 133,708 km is the largest of the 9 major planets, with a mass of 317.83 times, and a volume of 1321.4 times that of the Earth.

Smallest Planet: Pluto with a diameter of about 3000 km or 1880 miles and the mass is about 1/500 of the Earth.

Fastest Planet: Mercury, which orbits the Sun at an average distance of 35,983,100 miles or 57,909,200 km, has a period of revolution of 879,686 days, so giving the highest average speed in orbit of 107,030 mph or 172,248 km/h.

Earliest Space Craft: Sputnik, owned by USSR, was the first artificial satellite successfully put into orbit on Oct. 4, 1957.

Shortest Dwarf (living): In July 1982 an unconfirmed height of 28 in (71 cm) was reported for a chicken farmer named Ghulam Ahmed Dar living near Srinagar in Kashmir.

Human Computer: Mrs. Shakuntala Devi of India demonstrated the multiplication of two 13-digit numbers 7,686,369,774,870 × 2,465,099,745,779 picked at random by the Computer Department of Imperial College, London, on 18 June 1980, in 28 sec. Her correct answer 18,947,668,177,995,426,462,773,730.

Greatest number of places of π (pi): Rajan Srinivasan Mahadevan, 23, recited 'pi' from memory (in English) 31811 places in 3 hr 49 min. (including 26 minutes of breaks) at the Lion Seva Mandir, Mangalore. His rate was 156.7 digits per minute.

Longest Finger Nails: The longest finger nails ever reported are those of Shridhal Chillal, (b. 1937) of Poona. The aggregate measurement, on 8 April 1985, was 143 in or 363 cm for the 5 nails on his left hand (thumb 34½ in or 86 4 cm) He last cut his nails in 1952.

Longest Hair: Swami Pandarasannadhi, the head of the Tirudadutural monastery, Tanjore district, Madras, was reported in 1949 to have hair 26 ft. (7.92 m) in length.

INDIA IN THE GUINNESS BOOK

Longest Moustache: The longest moustache on record was that of Masuriya Din (b. 1908), a Brahmin of the Partabgarh District in Uttar Pradesh. It grew to an extended span of 8 ft 6 in (259 cm) between 1949 and 1962. Karna Ram Bheel (b. 1928) was granted permission by a New Delhi prison governor in February 1979 to keep his 7 ft 10 in (238 cm) moustache grown since 1949 during his life sentence.

Operations (Most): Padmabhushan Dr. M. C. Modi, a pioneer of mass eye surgery in India since 1943, has performed 833 cataract operations in a single working day.

Most Recordings: Miss Lata Mangeshkar (b. 1928) between 1948 and 1985 has reportedly recorded not less than 30,000 solo, duet and chorus backed songs in 20 Indian languages She frequently had 5 sessions in a day and has 'backed' more than 2000 films.

Longest marriage (World): The longest recorded marriage was of 86 years between Sir Temulji Bhicaji Nariman and Lady Nariman from 1853 to 1940. It was a 'cousin-marriage' when both were five. Sir Temulji (b. 3 Sept. 1848) died, aged 91 years 11 months, in August 1940 at Bombay.

Camping Out: The silent Indian fakir Mastram Bapu has remained on the same spot by the roadside in the village of Chitra for 22 years 1960-82.

Crawling: Over a space of 15 months ending on 9 March 1985 Jagdish Chander, 32, crawled 1400 km — 870 miles from Aligarh to Jamma to propitiate his favourite Hindu goddess Mata.

Singing: Acharya Prem Bhikuji started chanting the Akhand Ram Dhun in 1964 and devotees took this up in rotation completing their devotions 13 years later on 31 July 1977 at Jamnagar.

Standing: The longest period on record that anyone has continuously stood is for more than 17 years in the case of Swami Maujgiri Maharaj when performing the Tapasya or penance from 1955 to November 1973 in Shahjahanpur, Uttar Pradesh. When sleeping he would lean against a plank. He died aged 85 in Sept. 1980.

Biggest manufacturer: The world's biggest manufacturer of bicycles is Hero Cycles of Ludhiana, Punjab, India, founded in 1956 by the Munjal brothers. In 1986 they turned out 2,220,000 units. China is estimated to have 210 million bicycles.

Most Prolific Murderer (World): It was

established at the trial of Behram, the Indian thug, that he had strangled at least 931 victims with his yellow and white cloth strip or ruhmal in the Oudh District between 1790 and 1840

Crowds (Largest): The greatest recorded number of human beings assembled with a common purpose was an estimated 12,700,000 at the Hindu festival of Kumbh-Mela, which was held at the confluence of the Yamuna (formerly called the Jumna), the Ganges and the invisible 'Sarasvati' at Allahabad, Uttar Pradesh, on 19 January 1977.

Largest Funerals: The funeral of the charismatic C. N. Annadurai (died 3 Feb. 1969) T. Nadu Chief Minister was, according to a police estimate, attended by 15 million.

The youngest Gold Medallist: Ved Prakash (India) won the light-flyweight wrestling title in 1970 aged probably 14, although one report gave his age as 12.

Chess (origin): The game originated in ancient India under the name Chaturanga (literally 'four corps' an army game)

Individual Career Records — All First Class Cricket (FC) and Test Cricket (Test): Batting — Sunil Gavaskar, India (b. 10 July, 1949) (av 50 61), India (106 Tests) — 1971-85

Earliest Manned Satellite: First successful manned space flight took off from USSR on April 12, 1961. Flight Major (later Col) Yuri Gagarin was the first cosmonaut.

Earliest Walk in Space: The earliest instance of an astronaut floating free outside a space vehicle was Edward H White, for 21 minutes on June 3, 1965; Space craft- Gemini-IV.

Man's Longest Time in Space: 221 days by Anatoly Berezovoi and Valentin Lebedev on board the Research Station 'Salyut-7'.

Largest Space Object: The heaviest object orbited is the Apollo–XV, which weighed 138.29 tonnes or 140 512 kg.

Tallest Building: Sears Tower, the national headquarters of Sears, Roebuck & Co. in Chicago, USA with 110 storeys, rising to 1,454 ft or 443 metres. It surpassed World Trade Centre in New York City in height by 100 ft.

Tallest Tower: 'CN Tower' in Metro Centre, Toronto, Canada rises to 1822 ft 1 in or 555.33 metres. The tallest tower built before the era of television masts is the *Eiffel Tower* in Paris, France Completed on March 31, 1889, it has a height of 320.75 metres or 1,056 ft 3 in.

Largest Stadium: Strahov in Praha (Prague), Czechoslovakia. Completed in 1934, it can accommodate 2,40,000 spectators.

Longest Bridge: The longest steel arch bridge in the world is New River Gorge Bridge in West Virginia, USA, completed in 1977 with a span of 1700 ft (518.2 metres).

Longest Railway Bridge: Huey P. Long Bridge, Louisiana, USA, which is 4.35 miles or 7 km long.

Highest Dam: The Grande in the Swiss Dixence Alps, built in 1961, has a height of 935 ft or 285 metres.

Longest Tunnel: For road traffic—the 10.14-mile-(16.32 km) long two-lane St. Gotthard road tunnel from Goschenen to Airolo, Switzerland, opened in 1980.

Longest Tunnel: for rail traffic—the 22.2 km (13 miles 1397 Yd) long Oshimizu Tunnel on the Tokyo-Niigata Joestsu line in Central Honshu under the Tanigawa mountain, opend in 1979.

Longest Wall: The Great Wall of China, completed during 246-210 BC, has a mainline length of 2,150 miles or 3460 km.

and the longest liner is 'Norway' of 70,20 grt and 315.60m or 1035 ft 7½ in ove length. Owned by Knut Kloster of Norv

Largest Cargo Vessel: Liberian ore/oil car 'World Gala' of 133,748 Gt or 282,462 dwt a length of 1,109 ft. or 338 m, owned Liberian Trident Transports Inc., complete 1973.

Largest Tanker: The world's largest tar and ship of any kind is the 564,739-to deadweight "Seawise Giant", completed C.Y. Tung in 1981.

Fastest Train: The highest speed recor on any national rail system is 236 m/h or km/h by the French SNCF high speed TGV-Train-a Grande Vitesse, inaugurate 1981.

Longest Rail Line: 9438 km or 5,864½ n on the Trans-Siberian line from Moscov Nakhodka, USSR. There are 97 stops in journey which takes 8 days 4 hr 25 mi

Largest Air-liner: The highest capacity ai er is the Boeing 747 'Jumbo Jet', first flow 1969. It has a capacity of from 385 to n than 500 passengers, with a maximum sp of 602 m/h or 969 km/h.

Fastest Airliner: The Supersonic BAC- Ae patiale "Concorde", first flown in 1969, w capacity of 128 passengers, cruises at u Mach 2.2 (1450 m/h) or 2333 k/h.

Largest Airport: King Abdul-Aziz Interna al Airport, near Jeddah, Saudi Arabia, cove an area of 40 sq. miles or 103 sq km. Its Terminal is the world's largest roofed s ture, covering 1.5 sq km or 370 acres.

Largest Sea Port: Port of New York and Jersey. It has a navigably wide front of miles or 1215 km. A total of 261 cargo be and 130 other piers give a total berth cap for 391 ships at one time.

Busiest Port and Harbour: The Wo busiest port and largest artificial harbo Rotterdam - Europort in Netherlands, w handled 31,565 vessels in 1982.

Largest Airline: The USSR State Ai "Aerofloat", established in 1923. This ai operates 1300 aircrafts over about 560 miles or 9,00,000 km and employs a 5,00,00 persons. It carried 1.6 million pas gers to 97 countries in. 1981.

Fastest Typewriting: The highest reco speed attained on a manual machin

Voyager Record in Aviation

The spidery-looking craft that made round the world without refuelling

The successful touchdown of Voyager at California's Edward Air Force Base on December 23, 1986, after a nine-day non-stop flight around the globe has opened a new chapter in aviation history.

The success of the mission is expected to have significant military and commercial implications. The aircraft used a new construction and signalled the success of metal substitutes called composite fibres. These fibres promise to be as strong as aluminium and steel and as light in weight as perhaps jute fibre.

Mr. Burt Rutan, who designed and developed the Voyager, believes that the materials that he used in the plane would make commercial flights cheaper and easier.

Two distinct features of the Voyager, its range and resistance of its materials to radar detection, make it very attractive for military uses.

The Voyager has a top speed of only less than 200 km per hour and weighs only as much as a small car. But its wingspan is as much as that of a Boeing "2". Mr. Burt Rutan and his brother, Mr. Dick Rutan, with the help of their friends built the plane in a shed that they rented for $ 65 a month near an airport. It was Mr. Dick Rutan who piolted the Voyager on its 40,000 km flight, assisted by his girl friend, Ms. Jeana Yeager.

It took the two brothers six years and $ 2 million to build the plane. Much of the money came as contributions from friends and some business corporations that showed interest in the project.

The material that Mr. Burt Rutan used was two layers of graphite fibre with an inner core of some other honeycombed composite. As a result, the Voyager was able to carry more than 3,000 kg of fuel, 1" tanks tucked into every inch of space.

machine: Underwood Standard, on October 21, 1918. 1 hour 147 words (net rate per min.): Albert Tangara, USA. Machine: Underwood Standard, on October 22,1923.

Largest Armed Force: Chinese People's Liberation Army with 4,230,000, according to 1982 census. Her para-military forces have been estimated at 12 million. In October 1985 China announced her intention of reducing the strength of PLA by one million.

Most Populous Country: China. The c of July 1982 shows a populatio 1,008,175,288. The rate of increase in Cl now estimated to be 38 700 a day o million per year.

Largest Election: that of January, 1980 f 544 seats of Indian Lok Sabha. There we million voters, from 23 States and 8 Territories, who voted Smt. Indira Gan power.

SOBRIQUETS

Sobriquets are secondary names (including nicknames) that become attached to certain persons, places or things. Thus the Bank of England is known as the Old Maid of Threadneedle Street, and the *Malayala Manorama,* the oldest newspaper of Kerala as the Granny of Kottayam.

'Bismarck was known as the Man of Blood and Iron' and Florence Nightingale is famous as 'the Lady with the Lamp'. Tippu Sul Mysore is still spoken of as the 'Mysore

Some names, as H. W. Fowler obs have a large retinue of sobriquets. Ron example, may be 'the Eternal City, The C Seven Hills, the Papal City, the Scarlet W the Scarlet Whore, the Empress of the A World and the Western Babylon'. (M.

Sobriquets		Primary Names
Bengal's Sorrow	...	River Damodar, Bengal, India
Blue Mountains	...	Nilgiri Hills, India
Britain of the South	...	New Zealand
City of the Golden Gate	...	San Francisco, USA
City of the Golden Temple	...	Amritsar, India
City of Dreaming Spires	...	Oxford, England
ity of Magnificent Distances	...	Washington, D.C., USA
City of Palaces	...	Calcutta, India
Cockpit of Europe	...	Belgium
Dark Continent	...	Africa
Emerald Island	...	Ireland
Empire City/City of Skyscrapers	...	New York, USA
Forbidden City	...	Lhasa, Tibet
Garden of England	...	Kent, England
Garden of India	...	Bangalore
Gate of Tears	...	Bab-el-mandab
Gateway of India	...	Bombay
Gift of the Nile	...	Egypt
Granite City	...	Aberdeen, Scotland
Great White Way	..	Broadway, New York
Herring Pond	..	Atlantic Ocean
Holy Land	...	Palestine
Island of Cloves	..	Madagascar (Malagasy)
Island of Pearls	...	Bahrain
Key of the Mediterranean	..	Gibraltar
Land of Cakes	..	Scotland
Land of the Kangaroo	...	Australia
Land of the Golden Pagoda	...	Burma

Land of Lillies/Land of Maple	...	Canada
Land of Morning Calm	...	Korea
Land of the Midnight Sun	...	Norway
Land of the Rising Sun	...	Japan
Land of Five Rivers	...	Punjab, India
Land of Thousand Lakes	...	Finland
Land of the White Elephant	...	Thailand
Never Never Land	...	Prairies of N. Australia
Pearl of the Antilles	...	Cuba
Playground of Europe	...	Switzerland
Powder Keg of Europe	...	Balkans
Quaker City	...	Philadelphia
Queen of the Adriatic	...	Venice, Italy
Queen of the Arabian Sea/Venice of the East	...	Cochin, India
Roof of the World	...	Pamirs
Rose Pink City	...	Jaipur, India
Saint of the Gutters	...	Mother Teresa
Sick Man of Europe	...	Turkey
Sorrow of China	...	River Hwang Ho
Spice Garden of India	...	Kerala
White City	...	Belgrade, Yugoslavia
White Man's Grave	...	Guinea Coast
Windy City	...	Chicago, USA
World's Bread Basket	...	Prairies of N. America
World's Loneliest Island	...	Tristan da Cunha

ABBREVIATIONS

Abbreviations are an accepted form of usage in all developed languages. They save time and space—time in talking and space in writing. It is for this reason that abbreviations have become popular with all and sundry.

Formerly abbreviations were used sparingly. Only well known organisations, products, processes, or projects were indicated by their initials. Today, abbreviations are being bandied about indiscriminately. They are being used for all sorts of things, well known, little known and unknown.

AAPSO: Afro-Asian People's Solidarity Organisation.
ABC: Atomic Biological and Chemical (warfare); Audit Bureau of Circulation.
ABM: Anti-Ballistic Missile
AC: Ante Christum (Before Christ); Alternate Current (electricity); Asoka Chakra; Airconditioner.
A/c: Account
ACC: Auxiliary Cadet Corps; Associated Cement Companies
AD: Anno Domini (in the year of our Lord)
ADC: Aide-de-camp (helper or assistant)
ADB: Asian Development Bank
AEC: Atomic Energy Commission
AG: Accountant General; Adjutant General
AH: Anno Hegirae (Mohammed's flight from Makkah to Medina, 622 AD)
AHQ: Air Headquarters or Army Headquarters
AICC: All India Congress Committee
AI: Air India
AIDS: Acquired Immune Deficiency Syndrome
AIMA: All India Manufacturers' (and also Management) Association
AIMO: All India Manufacturers' Organisation
AINEC: All India Newspaper Editors Conference
AIIMS: All India Institute of Medical Sciences
AIR: All India Radio
AM: Ante Meridiem (before noon)
AITUC: All India Trade Union Congress
ANZAC: Australia, New Zealand Army Corps
ANZUS: Australia, New Zealand, United States of America (a term applied to the Pacific Pact amongst these powers)
AOC: Air Officer Commanding
APC: Agricultural Prices Commission
ARC: Administrative Reforms Commission
ARDC: Agricultural Refinance & Development Corporation
ARP: Air Raid Precautions
ASAT: Anti-Satellite
ASC: Army Service Corps
ASI: Archaeological Survey of India
ASEAN: Association of South East Asian Nations

VARD: Association of Voluntary Agencies for Rural Development.
VSM: Ati Vishisht Seva Medal
WACS: Airbourne Warning And Control System.

B.A.: Baccalaureus Artium; Bachelor of Arts; British Academy
BARC: Bhabha Atomic Research Centre
BBC: British Broadcasting Corporation
BC: Before Christ
BCG: Bacillus Calmette Guerin (Anti-T.B. Vaccine)
BE: Bachelor of Engineering
BEL: Bharat Electronics Limited
bhp: brake horse power
BENELUX: (A short term for) Belgium, Netherlands and Luxembourg
BHEL: Bharat Heavy Electricals Ltd.
BIS: Bank of International Settlements; British Information Service
BO: Body Odour
BP: Blood Pressure; Before Present
BPE: Bureau of Public Enterprises
B. Pharm: Bachelor of Pharmacy
BSF: Border Security Force
B Th U: British Thermal Unit

C°: Centigrade
CA: Chartered Accountant
CADA: Command Area Development Agency, India
Cantab: Cantabrigian (of Cambridge University)
CARE: Co-operative for American Relief Everywhere
CASA: Church's Auxiliary for Social Action, India
CASTASIA: Conference on the Application of Science and Technology to the Development of ASIA
CBI: Central Bureau of Investigation, India
c&b: caught and bowled (a term in cricket)
Cricket Club of India
CDP: Community Development Programme
CDS: Compulsory Deposit Scheme
cf: confer (compare)/refer
C.G.S. Chief of the General Staff: Centimetre, Gram, Second.
CGHS: Central Government Health Scheme
CIA: Criminal Investigation Agency; Central Intelligence Agency (USA)
C-in-C: Commander-in-Chief
CID: Criminal Investigation Department
cif: cost, insurance and freight
CIL: Coal India Limited
CIR: Canada India Reactor
CITU: Centre of Indian Trade Unions.
CJ: Chief Justice
CLRC: Central Land Reforms Committee
CMO: Chief Medical Officer
CO: Commanding Officer
CIWTC: Central Inland Water Transport Commission
Co: Company
C/o: Care of
COFEPOSA: Conservation of Foreign Exchange and Prevention of Smuggling Act
:od: cash on delivery
:p: compare
CORE: Congress of Racial Equality
CPI/CPM: Communist Party of India/Marxist
CR: Central Railway
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CSIR: Council of Scientific and Industrial Research,India
CSO: Central Statistical Organisation, India
Cwt: Hundredweight
CVC: Chief Vigilance Commissioner

DA: Dearness Allowance
DC: Deputy Commissioner/Direct Current (eelectricity) District of Columbia
D & C: Dilation and Curettage
DDT: Dichlor-diphenyl-trichloro-ethane
DGTD: Director General of Technical Development, India
DG: Del Gratia (By the grace of God)
DIG: Deputy Inspector General
disco: discotheque (a place where one can dance to music played on records or discs)
DLO: Dead Letter Office (New name is RLO—Returned Letters Office)
D. Litt: Doctor of Literature
DM: District Magistrate
DMK: Dravida Munnetra Kazagham
DNA: Deoxy-ribose Nucleic Acid
DPI: Director of Public Instruction
DPSA: Deep Penetration Strike Aircraft
D. Sc: Doctor of Science
DV: Deo Volente (God Willing)
DVC: Damodar Valley Corporation
DUSU: Delhi University Students' Union

ECA: Economic Co-operation Administration
ECAFE: Economic Commission for Asia and Far East (Now ESCAP)
ECE/A/LA: Economic Commission for Europe/Africa/Latin America
ECG: Electro Cardiogram
ECM: European Common Market
ECOSOC: Economic and Social Council (UN)
EEC: European Economic Community
EEG: Electro Encephalogram
eg: exempli gratia (for example)
E-in-C: Engineer-in-Chief
EMG: Electro Myogram
EMF: Electro-Motive Force
EMS: European Monetary System
E&OE: Errors and Omissions Excepted
EPLF: Eritrean People's Liberation Front
EPNS: Electroplated Nickel Silver
ERDA: Energy Research and Development Administration.
ERP: European Recovery Programme.
ESCAP: Economic and Social Commission for Asia and the Pacific.
ESI: Employees State Insurance.
ESP: Extra Sensory Perception.
etc: et ceteri or et cetera (and others/and so forth).
et seq: et sequentia (and what follows).
Ex-officio: By virtue of one's office.

FACT: Fertilisers and Chemicals Travancore Ltd.
FAO: Food and Agriculture Organisation.
FBI: Federal Bureau of Investigation.
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Hon: Honourable, Honorary.
hp: horse power.
HP: Harmonic Progression; Himachal Pradesh.
HQ: Head Quarters.
Hr: Hour.
HSD: High Speed Diesel.
HSL: Hindustan Steel Limited.
HWM: High Water Mark.
HUDCO: Housing and Urban Development Corporation.

IAMC: Indian Army Medical Corps.
IAA: International Airports Authority.
IA: Indian Airlines.
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ICWA: Indian Council of World Affairs.
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IDPL: Indian Drugs and Pharmaceuticals Limited.
ie: id est (that is).
IENS: Indian and Eastern Newspaper Society.
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IFC: Industrial Finance Corporation.
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IFS: Indian Foreign Service.
IGY: International Geophysical Year.
IIPA: Indian Institute of Public Administration.
IISCO: Indian Iron and Steel Company.
IIT: Indian Institute of Technology.
ILO: International Labour Organisation.
IMCO: Inter-government Maritime Consultations Organisation.
IMF: International Monetary Fund.
IMS: Indian Medical Service.
IN: Indian Navy.
INA: Indian National Army.
in cog: in cognito. (unknown).
INS: Indian Naval Ship.
INSDC: Indian National Scientific Documentation Centre.
INTUC: Indian National Trade Union Congress.
INDIPEX: Indian International Philatelic Exhibition.
INSAT: Indian National Satellite.
INTELSAT: International Telecommunication Satellite.
INTERPOL: International Police.
infra dig: infra dignitatum (below status).
IOC: Indian Oil Coorporation.
IOU: I Owe You.
IPC: Indian Penal Code.
IPCL: Indian Petro-Chemicals Corporation Ltd.
IPS: Indian Police Service, Inter Press Service.
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IRTS: Indian Railway Traffic Service.
ISRO: Indian Space Research Organisation
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IST: Indian Standard Time.
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IMF: International Monetary Fund.
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INTUC: Indian National Trade Union Congress.
INDIPEX: Indian International Philatelic Exhibition.
INSAT: Indian National Satellite.
INTELSAT: International Telecommunication Satellite.
INTERPOL: International Police.
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IOC: Indian Oil Coorporation.
IOU: I Owe You.
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IRS: Indian Revenue Service.
IRTS: Indian Railway Traffic Service.
ISRO: Indian Space Research Organisation.
ISI: Indian Standards Institution.
IST: Indian Standard Time.
ISSP: Indian Scientific Satellite Project.
ITBF: Indo-Tibetan Border Force
ITI: Indian Telephone Industries; Industrial Training Institute.

ITO: International Trade Organisation; Income-Tax Officer.
ITU: International Telecommunication Union.
ITUC: Indian Trade Union Congress.
ITY: International Tourist Year.
IUCD: Intra-Uterine Contraceptive Device.
IUCN: International Union for Conservation of Nature and Natural Resources.

JAL: Japan Air Lines.
JCO: Junior Commissioned Officer.
JP: Justice of the Peace.

KANU: Kenya African National Union.
KG: Knight of the Garter; Kindergarten
KGB: Komitet Gosudarstvennony Bizo Pasnosti (Russian Secret Police).
KKK: Ku Klux Klan (U.S. Secret Society—Anti-negro, Anti-Jewish).
KMT: Kuomintang (Chinese National Party).

LASER: Light Amplification by Stimulated Emission of Radiation.
LD: Lok Dal.
Lib: Liberation.
Litt.D: Doctor of Literature.
LIC: Life Insurance Corporation (of India).
LL.B.: Bachelor of Laws
LL.D: Doctor of Laws
LL.M.: Master of Laws.
loc cit: loco citato (at the place quoted).
LPG: Liquefied Petroleum Gas.
Lt: Lieutenant.
Lt. Col.: Lieutenant Colonel
LSD: Lysergic acid di-ethylamide.

Monsieur (Mister).
Magister Artium (Master of Arts).
Micro-wave Amplification by Stimulated Emission of Radiation.
MBA: Master of Business Administration.
MBBS: Bachelor of Medicine and Bachelor of Surgery.
MBE: Member of the British Empire.
MC: Military Cross; Member of Council; Municipal Committee; Municipal Commissioner; Medical Certificate.
MCC: Marylebone Cricket Club
M.D: Doctor of Medicine.
Mlle: Mademoiselle (Miss).
Mlles: Mesdemoiselles (Plural of Miss)
Mme: Madam (Mrs.).
Mmes: Mesdames (Plural of Mrs.)
MI: Military Intelligence.
MISA: Maintenance of Internal Security Act.
MIRV: Multiple Independently Targetable Re-entry Vehicle.
Misc: Miscellaneous.
MIT: Massachusetts Institute of Technology, USA.
MKS: Metre Kilogram Second (System).
MLA: Member of Legislative Assembly.
MLC: Member of Legislative Council.
MLF: Multilateral Force.
MMTC: Minerals and Metals Trading Corporation.
MNC: Multi-National Corporation.
MP: Member of Parliament; Madhya Pradesh
MPLA: People's Movement for Liberation of Angol
mph: miles per hour.
MRA: Moral Re-Armament.
MRCP: Member of the Royal College of Physician
MRCS: Member of the Royal College of Surgeon
MRTPC: Monopoly & Restrictive Trade Practic Commission.
M.Sc.: Master of Science.
MS/MSS: Manuscript/Manuscripts.
MVC: Maha Vir Chakra.

NABARD: National Bank for Agriculture and Ru Development.
NAEP: National Adult Education Programme.
NASA: National Aeronautics and Space Administ tion (U.S.A.).
NATO: North Atlantic Treaty Organisation.
NAYE: National Alliance of Young Entrepreneu
NB: Nota Bene (note well).
NCC: National Cadet Corps.
NCDC: National Coal Development Corporatio
NCAER: National Council for Applied Econom Research.
NCST: National Committee on Science & Te nology.
NCERT: National Council of Educational Resea and Training.
NCO: Non-Commissioned Officer.
NDA: National Defence Academy.
NDF: National Defence Fund.
NDC: National Development Council.
NDS: National Discipline Scheme.
NEFA: North-East Frontier Agency.
NFR: North-East Frontier Railway.
NER: North Eastern Railway.
NFIR: National Federation of Indian Railwaym
NIESBUD: National Institute of Entrepreneurs and Small Business Development (India).
NLTA: National Lawn Tennis Association.
NMDC: National Mineral Development Corpo tion.
non seq: non sequitur (it does not follow).
NOC: No Objection Certificate.
NP: Notary Public.
NPT: Nuclear Non-Proliferation Treaty.
NPC: National Productivity Council (India).
N and Q: Notes and Queries.
NSC: National Service Corps.
NSO: National Sports Organisation.
NSUI: National Students Union of India.
NTP: Normal Temperature and Pressure.
NR: Northern Railway.
NVF: National Volunteer Force.

O & M: Organisation and Methods.
OAS: Organisation for American States.
OAU: Organisation of African Unity. (It was set up May, 1963).
OBE: Officer (of the Order of the) British Empi
OC: Officer Commanding.

OCS: Overseas Communication Service.
OECD: Organisation for Economic Co-operation and Development.
OED: Oxford English Dictionary.
OEEC: Organisation for European Economic Co-operation.
OGL: Open General Licence.
OIL: Oil India Limited.
OK: All Correct (Slang).
OAPEC: Organisation of Arab Petroleum Exporting Countries.
OPEC: Organisation of Petroleum Exporting Countries.
OTS: Officers' Training School.
OXFAM: Oxford Committee for Famine Relief.
Oxon: Oxoniensis (of Oxford University).
OIGS: On India Government Service.
ONGC: Oil and Natural Gas Commission.
op cit: opero citato (in the work cited).

PA: Personal Assistant; Press Association.
PAC: Provincial Armed Constabulary.
PDA: Preventive Detention Act.
PAYE: Pay As You Earn.
pc: per centum; post card.
PEC: Project and Equipment Corporation.
PEN: (International Club of) Poets, Playwrights, Essayists, Editors and Novelists.
Perks: Perquisites of Office.
Per pro: Per procurationem (By the agency of)
Ph.D: Doctor of Philosophy.
PIB: Press Information Bureau.
PIN: Postal Index Number.
PKI: Partai Kommunis Indonesia (Communist Party of Indonesia).
PL480: Public Law 480 (Enactment in US under which foreign aid is given).
PM: Post Meridiem; Prime Minister.
PMG: Post Master General.
P&O: Peninsular and Oriental (Steamship) Co.
POW: Prisoner of War.
PRD: Prantiya Raksha Dal.
PRG: Provisional Revolutionary Government.
Pro-tem: Pro tempore (for the time being).
PS: Post Scriptum (written after); Private Secretary, Personal Secretary.
PPS: Post Post Scriptum (additional post script).
PSP: Praja Socialist Party.
PT: Physical Training.
PTI: Press Trust of India.
PTO: Please Turn Over.
PVC: Poly Vinyl Chloride; Param Vir Chakra.
PVSM: Param Vishisht Seva Medal.
PWD: Public Works Department.

Q: Queue.
QED: Quod Erat Demonstrandum (that which was to be demonstrated).
QMG: Quarter Master General.
qv: quod vide (which see).

RADAR: Radio Detecting and Ranging.
R&D: Research and Development.
RAW: Research & Analysis Wing.
RBI: Reserve Bank of India.
RCC: Reinforced Cement Concrete.
rtd: refer to drawer.
RIP: Requiescat in pace (May he or she rest in peace).
RITES: Rail India Technical & Economic Services.
RLO: Returned Letters Office.
RMS: Railway Mail Service.
RN: Royal Navy.
RNA: Ribo Nucleic Acid.
RNAC: Royal Nepal Airlines Corporation.
RPM: Revolutions Per Minute.
RRC: Reactor Research Centre.
RSVP: Respondez Sil vous plait (Reply if you please).
RSS: Rashtriya Swayam Sewak Sangh.

SAIL: Steel Authority of India.
SALT: Strategic Arms Limitation Talks.
SAM: Surface to Air Missile.
SAS: Small Astronomy Satellite.
SC: Supreme Court; Security Council.
SCI: Shipping Corporation of India.
SCRA: Special Class Railway Apprentices.
SDO: Sub-Divisional Officer.
SDR: Special Drawing Rights.
SEATO: South-East Asia Treaty Organisation.
SITE: Satellite Instructional Television Experiment.
SHAPE: Supreme Headquarters of Allied Powers in Europe.
SLFP: Sri Lanka Freedom Party.
SLV: Satellite Launch Vehicle.
SP: Superintendent of Police
SPCA: Society for the Prevention of Cruelty to Animals.
SPCK: Society for the Promotion of Christian Knowledge.
SR: Southern Railway.
SS: Steamship.
SSB: Service Selection Board.
SST: Supersonic Transport.
STARS: Satellite Tracking And Ranging Station.
STC: State Trading Corporation
STD: Subscriber Trunk Dialling; Sexually Transmitted Diseases
SUNFED: Special United Nations Fund for Economic Development.
SVP: Saturated Vapour Pressure

TA: Territorial Army; Travelling Allowance.
TB: Tuberculosis.
TC: Trusteeship Council (U.N. Organ).
TDA: Trade Development Authority
TELCO: Tata Engineering and Locomotive Company
TISCO: Tata Iron and Steel Company
TMO: Telegraphic Money Order
TNT: Trinitrotoluene
TERLS: Thumba Equatorial Rocket Launching Station.
TRACT: Transportable Remote Area Communications Terminal.
TTE: Travelling Ticket Examiner.
TVA: Tennessee Valley Authority

TULF: Tamil United Liberation Front.
TWA: Trans-World Airlines.
UGC: University Grants Commission.
UK: United Kingdom.
UNAEC: United Nations Atomic Energy Commission.
UNCIP: United Nations Commission for India and Pakistan.
UNCSTD: United Nations Conference on Science & Technology for Development.
UNEP: United Nations Environment Programme.
UNCTAD: United Nations Conference on Trade and Development.
UNEF: United Nations Emergency Force (UAR).
UNESCO: United Nations Educational, Scientific and Cultural Organisation.
UNI: United News of India.
UNICEF: United Nations International Children's Emergency Fund, now known only as 'United Nations Childrens Fund'.
UNIDO: United Nations Industrial Development Organisation.
UNIPOM: United Nations India-Pakistan Observation Mission.
UNRRA: United Nations Relief and Rehabilitation Administration.
P: Uttar Pradesh.
PSC: Union Public Service Commission.
USA: United States of America.
USAID: United States Agency for International Development.
USI: United States of Indonesia.
USSR: Union of Soviet Socialist Republics.
VAT: Value Added Tax.
VC: Vice-Chancellor, Victoria Cross.
VD: Venereal Disease (see STD).
VCO: Viceroy's Commissioned Officer.
Vr.C: Vir Chakra.
VIP: Very Important Person.
VPP: Value Payable Post.
VVF: Village Volunteer Force (Organised in Inc since January 1963).
WAY: World Assembly of Youth.
WFTU: World Federation of Trade Unions.
WHO: World Health Organisation.
WMO: World Meteorological Organisation.
WWF: World Wildlife Fund, now renamed Wo dwide Fund for Nature.
Xmas: Christmas.
YMCA: Young Men's Christian Association.
YWCA: Young Women's Christian Association.
ZETA: Zero Energy Thermo-nuclear Assembly Apparatus.
ZIP: Zonal Improvement Plan.

NOBEL PRIZE AND HONOURS

The 1987 Nobel Prize for **Peace**, the most oveted of them all, was won by Mr. Oscar rias Sanchez, 46, President of Costa Rica. This in recognition of his efforts to bring peace Central America long torn by strife and civil ar. His efforts resulted in an agreement igned by the Presidents of Costa Rica, Guatenala, El Salvador, Honduras and Nicaragua on ugust 7, 1987.

The other award-winners:

Physics: Dr. K. Alex Muller, 60, of Switzerind and Dr. George Bednorz, 37, of West ermany for their discovery of new superconucting materials at the IBN Zurich Research aboratory in Switzerland.

Chemistry: Dr. Donald J. Cram and Dr. hharles J. Pedersen both of the U.S. and Jean arie Lehu of France for their work in the ytheses of molecules that can mimic importnt biological processes.

Medicine: Dr. Susumu Tonegawa, 48, of ipan now researcher at the Massachusetts stitute of Technology in the US, for his discoveries explaining the structure of t body's immune defence.

Economics: Robert M. Solow, 63, of t Massachusetts Institute of Technology, U.S., his contribution to the theory of econon growth.

Literature: Joseph Brodsky, 47, the Sov Poet living in the U.S. for his works with "gr breadth in time and space".

Following is the full list of Nobel Pri winners:

Peace

1901 Jean H. Dunant (Switzerland) Frederick Passy (France)
1902 Elie Ducommun and A. Gobal (Switzerland)
1903 Sir W.R. Cremer (England)
1904 Institute of International Law (Belgiur
1905 Bertha Von Suttner (Austria)
1906 L. Roosevelt (USA)
1907 E.T. Moneta (Italy) and Louis Renau (France)
1908 K.P. Arnoldson (Sweden)

1909 August M.F. & A. Beernaert (Belgium)
1910 International Peace Bureau (Switzerland)
1911 T.M.C. Asser (Holland) & A.H. Fried (Austria)
1912 Elihu Root (USA)
1913 H. La Fontaine (Belgium)
1914-16 No Award
1917 International Red Cross (Geneva)
1918 No Award
1919 Woodrow Wilson (USA)
1920 Leon Bourgeois (France)
1921 K.H. Branting (Sweden) & Christian L. Lange (Norway)
1922 Fridtjof Nansen (Norway)
1923-24 No Award
1925 Charles G. Dawes (USA) & Sir J.A. Chamberlain (England)
1926 Aristide Briand (France) and G. Stresemann (Germany)
1927 F. Buisson (France) and Ludwig Quidde (Germany)
1928 No Award
1929 Frank B. Kellogg (USA)
1930 Lars O.J. Soderblom (Sweden)
1931 Jane Addams and Nicholas M. Butler (USA)
1932 No Award
1933 Sir Norman Angell (England)
1934 A. Henderson (England)
1935 Carl Von Ossietzky (Germany)
1936 C. de S. Lamas (Argentina)
1937 Viscount Cecil (England)
1938 Nansen International Office for Refugees (Geneva)
1939-43 No Award
1944 International Committee of Red Cross (Switzerland)
1945 Cordell Hull (USA)
1946 Emily G. Balch and John R. Mott (USA)
1947 American Friends Service Committee (USA) & Br. Society of Friends Service Council (England)
1948 No Award
1949 Lord John Boyd-Orr (England)
1950 Ralph J. Bunche (USA)
1951 Leon Jouhaux (France)
1952 Albert Schweitzer (France)

The Price of The Prize

Alfred Nobel, the wealthy industrialist who invented dynamite, scandalised his Swedish countrymen when he created the Nobel Prizes.

Swedes found out about the prizes only when they read his will after his death in 1896. In the will, he donated the annual income from his fortune—worth about $100 million today—to support the awards, and his critics charged he had been unpatriotic in not reserving the prizes for Sweden, then a poor agricultural country.

Nobel had ordered that "the most worthy shall receive the prize, whether he is Scandinavian or not."

Nobel's relatives contested his homemade will for three years in a futile attempt to get more than the 1 million kronor he left them. That money would be worth about $2.5 million today.

Only 4 per cent of the 530 prizes distributed since 1901 have been awarded to Swedes, but Sweden is the major winner, notes Mr. Stig Ramel, the head of the Nobel Foundation, which was established in 1900 to administer the legacy.

The 1987 winners get the equivalent of $3,43,000 (Rs. 42.87 lakhs approx.) per category, about $28,000 more than previous year's laureates, "more than enough to adjust for inflation", said Mr. Ramel.

1953 George C. Marshall (USA)
1954 Office of the U.N. High Commissioner for Refugees
1955-56 No Award
1957 Lester B. Pearson (Canada)
1958 Father G. Henri Pire (Belgium)
1959 Philip J. Noel-Baker (England)
1960 A.J. Luthuli (South Africa)
1961 Dag Hammarskjold (Sweden)
1962 Linus C. Pauling (USA)
1963 International Red Cross Committee & Red Cross League (Switzerland)
1964 Dr. Martin Luther King (USA)
1965 United Nations Children's Fund
1966-67 No Award
1968 Rene Cassin (France)
1969 International Labour Organisation
1970 Norman Ernest Borlaug (USA)
1971 Willy Brandt (Germany)
1972 No Award
1973 Henry Kissinger (USA) & Le Duc Tho (Vietnam) (Tho rejected the prize)
1974 Eisaka Sato (Former P.M., Japan), Sean MacBirde (Ireland), UN Commissioner for S.W. Africa, Namibia
1975 Andrie Sakharov (USSR)
1976 Betty Williams, Mairead Corrigan and Claron Mckeown (Northern Ireland)
1977 Amnesty International
1978 Anwar Sadat (Egypt) & Menacham Begin (Israel)
1979 Mother Teresa (India)
1980 Adolfo Peren Esquivel (Argentina)
1981 UN High Commissioner for Refugees
1982 Alva Myrdal (Sweden) & Garcia Robles (Mexico)
1983 Lech Walesa (Poland)
1984 Bishop Desmond Tutu (South Africa)
1985 International Physicians for Prevention of Nuclear War (USA)
1986 Elie Wisel (USA)

Physics

1901 W.K. Roentgen (Germany)
1902 H.A. Lorentz and P. Zeeman (Holland)
1903 A.H. Becquerel, Pierre & Marie Curie (France)
1904 Lord Rayleigh (England)
1905 Philipp Lenard (Germany)
1906 J.J. Thomson (England)
1907 A.A. Michelson (USA)
1908 G. Lippmann (France)
1909 G. Marconi (Italy) and F. Braun (Germany)
1910 J.D. Van der Waals (Holland)
1911 W. Wien (Germany)
1912 Gustaf Dalen (Sweden)
1913 H. Kamerlingh-Onnes (Netherlands)
1914 M. von Laue (Germany)
1915 W.H. Bragg and W.L. Bragg (England)
1916 No Award
1917 C.G. Barkla (England)
1918 Max von Planck (Germany)
1919 J. Stark (Germany)
1920 C.E. Guillaume (Switzerland)
1921 A. Einstein (Germany)
1922 Niels Bohr (Denmark)
1923 R.A. Millikan (USA)
1924 Karli Siegbahn (Sweden)
1925 James Franck & Gustav Hertz (Germany)
1926 Jean B. Perrin (France)
1927 Arthur Compton (USA) & Charles T.R. Wilson (England)
1928 O.W. Richardons (England)
1929 L.V. de Broglie (France)
1930 C.V. Raman (India)
1931 No Award
1932 W. Heisenberg (Germany)
1933 Paul A.M Dirac (England) & Erwin Schroedinger (Austria)
1934 No Award
1935 J. Chadwick (England)
1936 V.F. Hess (Austria) and C.D. Anderson (USA)
1937 C.J. Davisson (USA) and G.P. Thomson (England)
1938 E. Fermi (Italy)
1939 E.O. Lawrence (USA)
1940-42 No Award
1943 Otto Stern (USA)
1944 Isidor I. Rabi (USA)
1945 W. Pauli (Austria)
1946 P.W. Bridgman (USA)
1947 Sir E. Appleton (England)
1948 P.M.S. Blackett (England)
1949 Hideki Yukawa (Japan)
1950 C.F. Powell (England)
1951 Sir John Cockcroft (England) and E.T.S. Walton (Ireland)
1952 E.M. Purcell and Felix Bloch (USA)
1953 Fritz Zernike (Netherlands)
1954 S. Max Born (England) and Walther Bothe (Geermany)
1955 Willis E. Lamb and Ploykarp Kusch (USA)
1956 Walter H. Brattain, William Shockley and John Bardeen (USA)
1957 Tsung Dao Lee and Chen Ning Yang

Javed Husain Prize

UNESCO has awarded the firstever Javed Husain Prize for Young Scientists to Dr. Ian Balzarini of Belgium and Dr. Luis Herrera Estrella of Mexico.

This biennial award instituted in 1986 is given to a scientist below the age of 35 irrespective of nationality, race, sex, language, profession, ideology or religion.

The award is named after its donor, the Indian Physicist Dr. Javed Husain who has held Professorships in the US and Saudi Arabia and is presently Professor of Physics, Aligarh Muslim University.

Dr. Javed Husain is also the Consultant Editor, (Science) of ***Manorama Year Book.***

The 1987 UNESCO Science Prize has been awarded to Prof. Yuan Longping of China.

1987 Carlos J. Finlay Prize has been given to Dr. Hellio Gelli Pereira of Brazil and Prof. Petre Reichard of Sweden.

(USA) (b. China)
958 Pavel A. Cerenkov, Ilya M. Frank and Igor E. Tamm (USSR)
959 Emilio Segre and Owen Chamberlain (USA)
960 Donald A. Glaser (USA)
961 Robert Hofstadter (USA) & R.L. Mossabaur (Germany)
962 Lev. Dr. Landau (USSR)
963 Eugene P. Wigner (USA), Maria Goeppert—Mayer (USA) & J. Hans D. Jenen (Germany)
964 Charles H. Towns (USA), Nikolai G. Basov & A.M. Prokhorov (USSR)
965 Shinichero Tomonaga (Japan), Julian Schwinger & Richard P. Feynman (USA)
966 Alfred Kastler (France)
967 Hans A. Bethe (W. Germany)
968 Luis W. Alvarez (USA)
969 Murray Gell-Mann (USA)
970 Louis Neel (France) and Hannes Alfver (Sweden)
971 Denis Gabor (Britain)
972 John Bardeen, John Schneffer, Leon Cooper (all USA)
973 Leo Esaki (Japan), Ivar Giaevar (USA), Brian D. Josephson (UK)
974 Martin Ryle (UK) and Antony Hewish (UK)
975 James Rainwater (USA), Age Bohr (Denmark) and Ben Mottleson (Denmark)
976 Burton Richter (USA), Samuel C.C. Teng (USA)
977 Philip W. Anderson (USA), Sir Neville Mott (England), John H. Van Vleck (USA)
978 1. Pyotr Leontevitch Kapitsa (USSR) (Half the Prize amount) 2. Arno A. Penzias (USA) 3. Robert W. Wilson (USA)
979 Sheldon S. Glashow (USA), Steven Weinberg (USA) & Abdus Salam (Pakistan)
980 James W. Cronin and Val L. Fitch (USA)
981 Nicolaas Blombergen (Holland), Arthur Shawlow (USA) & Kai Siegbahn (Sweden)
982 Kenneth G. Wilson (USA)
983 S. Chandrasekhar (India-born Amercian Professor) and William Fowler (USA)
984 Carlo Rubbia, Simon Van Der Meer (Switzerland)
985 Prof. Klaus Bon Klitzing (F.R.G.)
986 Ernst Ruska (F.R.G.), Gerd Binning (F.R.G.) and Henrich Rohrer (Switzerland)

Chemistry

1901 J.H. Vant Hoff (Holland)
1902 Emil H. Fischer (Germany)
1903 S.A. Arrhenius (Sweden)
1904 Sir W. Ramsay (England)
1905 Adolf von Baeyer (Germany)
1906 Henri Moissan (France)
1907 E. Buchner (Germany)
1908 Ernest Rutherford (England)
1909 Wilhelm Ostwald (Germany)
1910 Otto Wallach (Germany)
1911 Marie Curie (France)
1912 F.A.V. Grignard and P. Sabatier (France)
1913 Alfred Werner (Switzerland)
1914 T.W. Richards (England)
1915 R. Willstatter (Germany)
1916-17 No Award
1918 Fritz Haber (Germany)

1919 No Award
1920 Walther Nernst (Germany)
1921 Frederic Soddy (England)
1922 F.W. Aston (England)
1923 Fritz Pregl (Australia)
1924 No Award
1925 R.A. Zsigmohdy (Germany)
1926 T. Svedberg (Sweden)
1927 H. Wieland (Germany)
1928 Adolf Windaus (Germany)
1929 A. Harden (England) and H. von Euler Chelpin (Sweden)
1930 Hans Fischer (Germany)
1931 Kal Bosch and Friedrich Bergius (Germany)
1932 Irving Langmuir (USA)
1933 No Award
1934 Harold C. Urey (USA)
1935 Frederick & Irene Joliot-Curie (France)
1936 Peter J.W. Debye (Germany)
1937 Walter N. Haworth (England) and Paul Karrer (Switzerland)
1938 R. Kuhn (Germany)—declined
1939 Adolf F. J. Butenandt (Germany)—declined—and Leopold Ruzicka (Switzerland)
1940-42 No Award
1943 G.H. De Heves (Hungary)
1944 Otto Hahn (Germany)
1945 Arturi I. Virtanen (Finland)
1946 J.B. Sumner, W.M. Stanley and J.H. Northrop (USA)
1947 Sir Roberto Robinson (England)
1948 Arne W.K. Tiselius (Sweden)
1949 William F. Giauque (USA)
1950 Otto Diels & Kurt Alder (Germany)
1951 Edward M. McMillan & Glen T. Seaborg (USA)
1952 Archer J.P. Martin & Richard L.M. Synge (England)
1953 Herman Staudinger (Germany)
1954 Linus C. Pauling (USA)
1955 Cincent du Vigneaud (USA)
1956 Sir Cyril Hinshelwood (England) Nikolai N. Semenov (USSR)
1957 Sir Alexander Todd (England)
1958 Frederick Sanger (England)
1959 Jaroslav Heyrovsky (Czechoslovakia)
1960 Williard F. Libby (USA)
1961 Melvin Calvin (USA)
1962 Max F. Perutz & C. Kendrew (England)
1963 Karl Ziegler (W. Germany) & Giulio Natta (Italy)
1965 Robert B. Woodward (USA)
1966 Robert S. Mulliken (USA)
1967 Maanfred Eigen (East Germany), Ronal G.W. Norrish (UK) and George Porte (UK)
1968 Lars Onsager (USA)
1969 Derek H.R. Barton (England) and Od Hassel (Norway)
1970 Luis F. Leloir (Argentina)
1971 Gerhard Herzberg (Canada)
1972 Christian B. Anfinsen, Stanford Moore & William H. Stein (USA)
1973 Ernst Otto Fischer (W. Germany), Geo frey Wilkinson (UK)
1974 Paul J. Flory (USA)
1975 John Warcup Cornforth (Britain) Vlad mir Prelog (Switzerland)
1976 William N. Lipscomb (USA)
1977 Ilya Prigogine (Belgium)
1978 Peter Mitchell (Britain)
1979 Herbert C. Brown (USA) & Georg Witting (W. Germany)
1980 Paul Berg (USA), Walter Gilbert (USA) & Frederick Sanger (Britain)
1981 Kenichi Fukui (Japan) & Roals Hoffman (USA)
1982 Aaron Klug (Britain)
1983 Prof. Henry Taute (USA)
1984 R. Bruce (USA)
1985 Herbert A. Hauptman and Jerome Karl (USA)
1986 Dudley R. Herschbach (USA), Joh Charles Polanyi (Canada) and Yuan Tes Ltd Lee (Taiwan)

Medicine & Physiology

1901 E.A. Von Behring (Germany)
1902 Sir Ronald Ross (England)
1903 N.R. Finsen (Denmark)
1904 Ivan P. Pavlov (Russia)
1905 Robert Koch (Germany)
1906 S. Ramon Cajal (Spain) and Camill Golgi (Italy)
1907 C.L.A. Laveran (France)
1908 Paul Ehrlich (Germany) & E. Metch nikoff (France)
1909 T. Kocher (Sweden)
1910 A. Kossel (Germany)
1911 A. Gullstrand (Sweden)
1912 Alexis Carrel (USA)
1913 Charles Richet (France)
1914 R. Barany (Austria)
1915-18 No Award

1920 August Krogh (Denmark)
1921 No Award
1922 A.V. Hill (England) and Otto Meyerhof (Germany)
1923 Frederic G. Banting and J.J.R. MacLeod (Canada)
1924 W. Einthoven (Holland)
1925 No Award
1926 Johannes Fibiger (Denmark)
1927 J. Wanger-Jauregg (Austria)
1928 Charles Nicolle (France)
1929 Sir F.G. Hopkins (England) and C. Eijkman (Holland)
1930 Karl Landsteiner (USA)
1931 Otto H. Warburg (Germany)
1932 Sir C.S. Sherrington & E.D. Adrian (England)
1933 T.H. Morgan (USA)
1934 G.R. Minot, W.P. Murphy & G.H. Whipple (USA)
1935 Hans Spemann (Germany)
1936 Sir Henry H. Dale (England) and Otto Loewi (Austria)
1937 A Szent-Gyorgyi (Hungary)
1938 C. Heymans (Belgium)
1939 G. Domagk (Germany)—declined
1940-42 No Award
1943 C.P. Henrik Dam (Denmark) and Edward A. Doisy (USA)
1944 Joseph Erlanger and Herbert Gasser (USA)
1945 Sir Alexander Fleming, Sir Howard W. Florey (England) and E.B. Chain (Germany)
1946 Herman J. Muller (USA)
1947 Carl F. and Gerty T. Cori (USA) & Bernardo A. Houssay (Argentina)
1948 Paul Mueller (Switzerland)
1949 Walter R. Hess (Switzerland) & Antonio C.A.F. Moniz (Portugal)
1950 Edward C. Kendall, Philip S. Hench (USA) & t. Reichstein (Switzerland)
1951 Max Theiler (USA-b Africa)
1952 S.A. Waksman (USA)
1953 Hans A. Krebs (England) & Frits A. Lipmann (USA)
1954 J.F. Enders, F.C. Robbins & T.H. Weler (USA)
1955 A.H.T. Theorell (Sweden)
1956 Andre F. Cournand, D.W. Richards (USA) & Dr. W. Forssmann (Germany)
1957 Daniel Bovet (Italy)
1958 G.W. Beadle, Joshua Lederberg & E.L. Tatum (USA)
1959 Servo Ochoa & Arthur Kornburg (USA)
1960 Sir M. Burnet (Australia) & Peter B. Medawar (England)
1961 George von Bekesy (USA)
1962 Francis H.C. Circk (England), Maurice H.F. Wilkins (England) and James D. Watson (USA)
1963 Sir John C. Eccles (Australia), Andrew F. Huxley & A.L. Hodgkin (England)
1964 Konard E. Bloch (USA) & Feodor Lynen (W. Germany)
1965 Francois Jacob, Andre Lwoff & Jacques Monod (France)
1966 Francis P. Rous & Charles B. Huggins (USA)
1967 Ranger Granit (Sweden), Haldon Keffer Hartline and George Wald (USA)
1968 Dr. Hargovind Khorana (USA) (b. India), Robert W. Holley & Marshall W. Nirenberg (USA)
1969 Dr. Max Delbruck (USA), Dr. Alfred D. Hershey (USA), Dr. Salvador Luria (USA)
1970 Sir Bernard Katz (England), Dr. Ulf von Euler (Sweden), Dr. Julis Axelrod (USA)
1971 Dr. Eare Wilbur Sutherland (USA)
1972 Gerald Edelman (USA), Rodney Porter (Britain)
1973 Karl Von Frisch (W. Germany), Zacharias Lorenz (Austria), Nicholas Tinbergen (Netherlands)
1974 Albert Claude (Luxembourg), Geroge E. Palade (Hungary), Christian de. Duve (Belgium)
1975 David Baltimore (USA), Renato Dulbecco (Britain), Howard M. Temin (USA)
1976 Baruch S. Blumberg (USA), D. Carleton Gajdusek (USA)
1977* Rosalyn S. Yalow (USA), Andrew V. Schally (USA) and Roger Guillemin
1978 Werner Arber (Switzerland), Daniel Nathans (USA) and Hamilton O. Smith (USA)
1979 Godfrey Hounsfield (Britain) Allan McCormach (USA)
1980 Buruf Benacerraf (USA), George Snell (USA), Jean Dausset (France)
1981 Roger Sperry, David Hubel (USA) & Torsten Wiesel (Sweden)
1982 Sune Bergstroem, Bengt Samuelsson (Sweden) and John R. Vane (Britain)

* Half the Prize amount went to Rosalyn Yalow, who incidentally, is the 6th woman to receive a Nobel Prize in the sciences. the other half was shared equally by Roger Guillemin and Andrew S[illegible]

1983 Dr. Barbara McClintock (England)
1984 Dr. Niels Jerne (Denmark),Dr. George Kochler (W. Germany), Dr. Cesar Milstein (Argentina)
1985 Michael S. Brown and Joseph Goldstein (USA)
1986 Stanley Cohen and Rita Levi-Mondalcini (USA)

Economics

1969 Ragnar Frisch (Norway) & Jan Tinbergen (Holland)
1970 Dr. Paul A. Samuelson (USA)
1971 Simon Kuznets (USA)
1972 John R. Hicks (Britain) & Kenneth J. Arrow (USA)
1973 Wassily Leontief (USA)
1974 Gunnar Myrdal (Sweden) & Friedrich A Von Hayek (Austria)
1975 Leonid V. Kantarovich (USSR), Tjalling C. Koopmans (USA)
19) Milton Freidman (USA)
19 ' Berti Ohlin (Sweden) & James E. Meade (England)
19) Herbert A. Simon (USA)
19) Theodore Shultze & Sir Arthur Lewis (USA)
19) Lawrence Klein (USA)
19 1 James Tobin (USA)
19 2 George Stigler (USA)
19 3 Gerard Debreu (USA)
19 4 Sir Richard Stone (Britain)
19 5 Franco Modigliani (USA)
19 5 James McGill Buchanan (USA)

L terature

19 1 Rene F.A. Sully-Prudhomme (France)
19 2 T. Mommsen (Germany)
19 3 B. Bjornson (Norway)
19 4 F. Mistral (France) and Jose Echegaray (Spain)
19 5 H. Sienkiewicz (Poland)
1906 Giosue Carducci (Italy)
1907 Rudyard Kipling (England)
1908 R. Eucken (Germany)
1909 Selma Lagerlof (Sweden)
1910 Paul J.L. Heyse (Germany)
1911 M. Maeterlinck (Belgium)
1912 G. Hauptmann (Germany)
1913 Rabindranath Tagore (India)
1914 No Award
1915 Romain Rolland (France)
1916 V. Heidenstam (Sweden)
1917 Karl Gjellerup and H. Pontoppidan (Denmark)
1918 No Award
1919 Carl F.G. Spitteler (Switzerland)
1920 Knut Hamsun (Norway)
1921 Anatole France (France)
1922 J. Benavente Martinez (Spain)
1923 W.B. Yeats (Ireland)
1924 L.S. Reymont (Poland)
1925 G.B. Shaw (England)
1926 Grazia Deledda (Italy)
1927 Henri Bergson (France)
1928 Sigrid Undset (Norway)
1929 Thomas Mann (Germany)
1930 Sinclair Lewis (USA)
1931 Erik A. Karlfeldt (Sweden)
1932 John Galsworthy (England)
1933 Ivan G. Bunin (USSR)
1934 Luigi Pirandello (Italy)
1935 No Award
1936 Eugene O Neil (USA)
1937 R.M. du Gard (France)
1938 Pearl S. Buck (USA)
1939 F.E. Sillanpaa (Finland)
1940-43 No Award
1944 J.V. Jensen (Denmark)
1945 Gabriela Mistral (Chile)
1946 Hermann Hesse (Switzerland)
1947 Andre P.G. Gide (France)
1948 T.S. Eliot (England)
1949 William Faulkner (USA)
1950 Bertrand A.W. Ressell (England)
1951 Par Lagerkvist (Sweden)
1952 Francois Mauriac (France)
1953 Sir Winston S. Churchill (England)
1954 Ernest Hemingway (USA)
1955 Halldor K. Laxness (Ireland)
1956 Juan R. Jiminez (Spain)
1957 Albert Camus (France)
1958 Boris L. Pasternak (USSR)
1959 Salvatore Quasimodo (Italy)
1960 Saint John Perse (France)
1961 Ivo Andric (Yougoslavia)
1962 John Steinbeck (USA)
1963 Giorgos Seferis (Greece)
1964 Jean-Paul Sartre (France) (Sartre reject the prize)
1965 Mikhail Sholokhov (USSR)
1966 Samuel J. Agnon (Israel) & Nelly Sac (Sweden)
1967 Miguel Angel Asturias (Guatemala)
1968 Yasunari Kawabata (Japan)
1969 Samuel Beckett (Ireland)
1970 Alexander Solzhenitsyn (USSR)
1971 Pablo Neruda (Chile)

Indians Who Won the Prize

"Where the mind is without fear
and the head is held high;
Where the world has not been broken up
into fragments by narrow domestic walls....
....Into that heaven of freedom, my Father,
let my country awake."

—Gitanjali

So sang poet Rabindranath Tagore whose 125th birth anniversary was celebrated in India and abroad in 1986.

It was Tagore who first won the Nobel Prize for India through his inimitable strains of poetic genius.

Here is a thumb-nail sketch of all the Indians who won Nobel Prize:

Rabindranath Tagore (1861-1941): Author and educator. Founded Shantiniketan (1901) which later became Vishwabharati University. Tagore wrote love lyrics. 'Gitanjali' and philosophical 'Sadhana' are important works. India's national anthem was written by Tagore. Awarded Nobel Prize for literature in 1913.

Hargobind Khorona (b. 1922): Now an American citizen, was born in Raipur, Madhya Pradesh. He is married to a Swiss. Khorona was awarded Nobel Prize in 1968 for medicine for laboratory synthesis of a yeast gene for the first time.

C. V. Raman (1888-1970): Physicist. Raman was born at Thiruvanaikdaval near Tiruchirappilly in Tamil Nadu. Educated in Presidency College, Madras. Married to Lokasundari. Awarded Nobel Prize for Physics in 1930 for his study of scattering of light. Popularly known as 'Raman Effect', the theory describes change in the frequency of light passing through transparent medium.

Mother Teresa (b. 1910): Was born to Albanian parents in Skoplje, Yugoslavia and baptized Agnes Gonxha Bojaxhin. She came to India when she was 18 and took up teaching. She established a new congregation 'Missionaires of Charity', which was approved by Vatican in 1950. Mother Teresa became an Indian citizen in 1948. She was awarded Nobel prize for Peace in 1979.

Subramanian Chandrasekhar (b. 1910): Now an American citizen, was born at Lahore, now in Pakistan, where his father was working. He was educated in Presidency College, Madras. Nobel laurate C. V. Raman was his uncle. All of Chandrasekhar's three brothers are scientists. Married to Lalitha, who was one year his junior in college. She is also a Physicist. He was awarded Nobel prize for Physics in 1983 for what is now known as 'Chandrasekhar's Limit', which determines the minimum mass of a dying star enabling it to survive

1972 Heinrich Boell (Germany)
1973 Patrick White (Australia)
1974 Eyvind Johnson & Hary Edmund Martinson (Sweden)
1975 Eugento Montale (Italy)
1976 Saul Bellow (US)
1977 Vincente Aleixander (Spain)
1978 Issac Bashevis Singer (USA)
1979 Odysseus Elytis (Greece)
1980 Czeslaw Milosz (Poland)
1981* Elias Canetti (Bulgaria)
1982 Gabriel Garcia Marquez (Colombia)
1983 William Golding (Britain)
1984 Jaroslav Seifert (Czechoslovakia)
1985 Claude Simon (France)
1986 Wole Soyinka (Nigeria)

Magsaysay Awards

Richard William Timus, Christian Missionary in Bangladesh won the 1987 Ramon Magsaysay Award for International Understanding.

The awards ceremony in Manila coincided with the 80th anniversary of the birth of Magsaysay, a former Philippine president who ...stituted a land reform programme to defuse ...ommunist insurgency in the 1950s. He was ...led in a plane crash in 1957.

Other winners: Diane Ying, Taiwan (Journalism, Literature and Creative Communication Arts), Dr. Aree Valyasevi, Thailand (Community leadership), Hans Bague Jassin, In... (Public Service) and Tabung Haji, ... (Government Service).

Each of the eight winners received a gold ...dallion and $ 20,000 (about Rs. 2,50,000).

Among those who won the award previous... are the following *Indians:*

International Understanding: Mother Tere... (1962);

Journalism, Literature and Creative Communication Arts: Amitabha Chowdhury 961), Satyajit Ray (1967), B.G. Verghese 975), Gour Kishore Ghosh (1981), Arun ...ourie (1982), R.K. Laxman (1984);

Community Leadership: Acharya Vinoba ...ave (1958), Dara N. Khurody; Tribhuvandas Patel and Verghese Kurian (1963), Kamadevi Chathopadhyay (1966), M.S. Swami...than (1971), Ela R Bhatt (1977), Rajankant S. ...ole and Mabelle R. Arole (1979);

Public Service: Jayaprakash Narayan (1965), S. Subbalakshmi (1974); Manibhai Phimbai Desai (1982); Muralidhar Devidas Amte (1985).

Government Service: C.D. Deshmukh (1959).

Literature

Jnanpith Award: *1986: Rs. 1.5 lakh):* Oriya poet Dr. Satchidananda Routroy.

'Sachi Routroy', 70, as he is affectionately called, is the Bhagirath of modern Oriya poetry Among his outstanding works are Palhevo, Rakta Sikha, Ultho Jago Bhuki Bandi Pallisree, Kavita and Baji Rout. 'Kavita' won the Central Sahithya Akademi Award in 1962.

Following is the list of previous recipients

1965 Mahakavi Sankara Kurup: *Odakuzhal*
1966 Tara Shankar Banerji: *Ganadevata;* 1967 Dr. K. V. Puttappa: *Ramayana Darsanam;* Umashankar Joshi: *Nishit;* 1968 Sumithranandan Pant: *Chidambaram;* 1969 Firak Ghorakhpuri *Gul-a-Ngma;* 1970 Dr. V. Satyanarayana *Ramayana Kalpavriksha;* 1971 Bishnu Dey: *Smithi Satha Bhavisvath;* 1972 Ramdhari Singh Dinakar: *Urvasi;* 1973 D. R. Bhendhre *Nakuthanthi;* Gopinath Mohanti: *Madimadan* 1974 V. S. Khandhekhar: *Yayathi;* 1975 P. V. Akilandam: *Chitirappavai;* 1976 Ashapurna Devi: *Pradhama Pruthi Shruti;* 1977 Dr. K. Shivaram Karanth: *Mukajja Kanakasugala* 1978 S. H. Valsyayan: *Kitni Navom Me Kith nibar;* 1979 B. K. Battacharya: *Mrutunjaya* 1980 S. K. Pottekkat: *Oru Desathinte Katha* 1981 Amrita Pritam: *Kagaz ke Kanvas;* 1982 Mahadevi Verma: *Yama;* 1983 . Dr. Masthi Venkateswara Iyenkar: *Chikkaveera Rajendra* 1984: Thakazhi Sivasankara Pillai: *Kayar* and other novels. 1985: Pannalal Patel: *Manvini Bhavai*

Asan World Prize: Indo-Anglian poetess Mrs. Kamala Das, also known by her pen-name Madhavikutty, won the 1985 Asan World Prize for her literary work. Mrs. Kamala Das is the fifth recipient of the Asan World Prize since it was instituted in 1981 in memory of the Keral poet Kumaran Asan. The previous recipients are: Leopold Sedar Senghor (Senegal), Nicholas Guillen (Cuba), Ethiravire Saradchandra (Sri Lanka) and Judith Wright (Australia).

Asan Prize: For a 'national poet' in memory of Malayalam poet Kumaran Asan was awarded to K.S. Narasimhaswamy, Kannada poet for his anthology 'Mallikamal' and M.P. Appan, Malayalam poet for his anthology

* Born in Bulgaria but living in London and writing in German.

Jeevitha Sayannathil'

Jnanpith Award for the Younger Generation: Vinod Das for his collection of poems, 'Khilaf Hawar Se & Gezartey Huey'

Jnanpith's Moorthidevi Sahitya Puraskar: 1985: Manubhai Pancholi 'Darshak', Gujarati Novelist.

Booker Prize: Top British literary award £ 15,000: Kingsley Amies for his novel 'The Old Devils' with 'brilliant comic insight.'

Rajarajan Award: By Tamil University Tanjavur. Rs. 1,00,001 – Jayakanthan for his novel 'Sundarakandam'.

Vayalar Award: By Vayalar Memorial Trust. Rs.25,000: Prof. N. Krishna Pillai for his textual criticism 'Prathipathram bhashnabedham'.

Children's Book Trust Award: Inaugural Children's Book Trust – UNICEF award. Children's Fiction: Kaveri Bhat for novel 'Once upon a Forest'. Picture Book: Mitra Phukan for 'Maman's Revenge'.

Jawaharlal Nehru Literacy Award: By the Indian Adult Education Association: Prof. N.G. Ranga.

The Tagore Memorial Award: Women's Literacy: Mrs. Lakshmi N. Menon.

Rajaji Literary Award: By Bharatiya Vidya Bhavan. 1. Dr. V.K. Gokak for his epic poem, 'Bharata Sindhu Rashmi', 2. Prof. Sukumar Azhikodu for his prose work, 'Thathvamasi'

Science

Third World Academy Award: By the Third World Academy of Sciences, Trieste, Italy. $ 10000 (about Rs.1,25,000). Physics: E.C.G. Sudarshan, Director, Institute of Mathematical Sciences, Madras; Chemistry: Prof. Leopoldo De Meis, Brazil and Mathematics: Prof. Liao Shan Tao, China. Prof. Sudarshan won the award for "his fundamental contribution to the understanding of the weak nuclear force, in particular, for his part in the formulation of the Universal V-A theory of Sudarshan and Marshak".

Albert Einstein World Award of Science: Dr. M.S. Swaminathan, Director General, International Rice Research Institute, Manila, for his 'contribution in the field of Plant Genetics'.

Edward Warner Award: By International Civil Aviation Organisation: JRD Tata for his contribution to aviation including his solo flight from Bombay to Karachi in 1932.

Pritzker Price: Regarded as the Nobel Prize for architecture. Instituted by Jay Pritzker of Chicago, President of Hyatt Foundation $ 1,00,000 (about Rs.12,50,000): Gottfried Boehm, Cologne.

The Fields Medal: Regarded as Nobel Prize for Mathematics. Instituted 50 years ago by Canadian Mathematician, John Charles Fields and given every year by International Mathematical Union, to mathematicians under 40: Gerd Faltings, a German teaching at Princeton University, Michael Freedman, University of California, San Diego and Simon Donaldson, Oxford University for breakthroughs in number theory and topology.

Hancock Medal: By the British Plastic and Rubber Institute: K.M. Philip, former President, All India Rubber Industries Association, for his contribution for the global growth of rubber industry.

R.D. Birla Memorial Award: By the Indian Physics Association. Rs.50,000: Dr. Raja Ramanna for his contribution in the field of nuclear fission studies, etc.

Prix de These 1985: By CNRS – The French National Centre for Science & Research – Brahmanand Mohanty, IIT, Madras and Ravindra Satish Topgi, National Institute of Oceanography, Goa.

Bhatnagar Medal: The Shanti Swarup Bhatnagar Medal by the Indian National Science Academy: Dr. Dilip Kumar Ganguly, Indian Institute of Chemical Biology, Calcutta.

Kalinga Prize: The UNESCO administered award for 1987 for the popularization of Science: Dr. Marcel Roche, the permanent delegate of Venezuela to UNESCO. The award, one among the Science Prizes instituted by UNESCO, carries an amount of £ 1500.

The Kalinga Prize was instituted by Biju Patnaik, industrialist and politician, who is the founder and Chairman of the Kalinga Foundation Trust in the state of Orissa. UNESCO awarded the prize for the first time in 1952.

The winner of the prize also receives the UNESCO Gold Medal and is invited to visit India as a guest of Kalinga Foundation Trust.

Vainu Bappu Memorial Award: Instituted by the Indian National Science Academy: Dr. S. Chandrasekhar, the India-born American astrophysicist.

Young Scientist Award: By the Council of

Scientific and Industrial Research (Rs.10,000): Dr. M.K. Gurjar, Dr. T. N. Guru, Dr. Sayed Wajih Ahmed Naqvi, Dr. K. Ravindranath and Dr. B. Jayaraman.

Om Prakash Bhasin Award: Dr. H.K. Jain, Dr. K.G. Menon, Dr. H.Y. Mohan Ram, Dr. P.V.S. Rao, Dr. N. Tata Rao, Dr. S. Varadarajan, Dr. L.K. Doraiswamy, Dr. M.S. Valiathan and Dr. A.P.J. Abdul Kalam.

General Foods' World Food Prize: $ 200,000 (about Rs. 25 lakhs): Dr. M.S. Swaminathan.

U.N. Population Award: President Hussain Mohammad Ershad of Bangladesh and Tunisia's National Office for Family and Population.

Indira Gandhi Prize for Popularising Science: Instituted by the Indian National Science Academy: Rs.10,000: Dr. M. Nalini Mohan Rao, New Delhi.

Japan Prize: Gurdev Kush, India; Henry M. Beachel and Theodore Maiman (both of USA).

Asian Productivity Organisation Award: Dr. A.N. Sexena.

C.V. Rman Award: Prof. R. Vijayaraghavan. TIFR, Bombay.

Medicine

Birla Award: By Rameshwardas Birla Smarak Kosh. Rs.1,00,000: Dr. B.K. Bachhawat, Head of the department of Bio-chemistry, Delhi University for research in the field of medicine.

Dhanwantari Award: By the Indian National Science Academy: Dr. P.N. Tandon, AIIMS, New Delhi.

Dr. B.C. Roy National Award: Rs.50,000 Prof. V. Ramalingasamy: Director General of Indian Council of Medical Research, Dr. R.K. Madan, Bombay and Dr. M.M.S. Siddhu, Lucknow.

Ernst Jung Prize: ($ 1,68,000): Dr. Peter D Richardson of the US and Dr. Karl Julius Ullrich of W. Germany.

Peace

Indira Gandhi Award for National Integration: By Indian National Congress: 1986: Mrs. Aruna Asaf Ali; Previous winner: Swami Ranganathananda of Ramakrishna Mission.

Indira Gandhi Prize for Peace, Disarmament and Development: Rs. 15 lakhs. The Parliamentarians Global Action.

Waterler Peace Prize: By the Carne Foundation, Netherlands: Dr. V. Kurian, for revolutionary work for the Indian dairy mers. Rs.2,00,000

Indira Gandhi Gold Plaque Award: Asiatic Society, Calcutta: Olof Palme, Swe (Posthumously).

Freedom from Fear Award: By the Fra lin Delano Roosevelt Four Freedoms Four tion, U.S.: Olof Palme, Sweden (P humously).

Longowal Award: By Sant Harchand Si Longowal Memorial Foundation: Acharya Sushil Muniji Maharaj, founder Internatic Mahavir Jain Mission and the World lowship of Religions.

Dag Hammarskjold Academy Pe Prize: King Hussein of Jordan.

Lokmanya Tilak Award: By Lokma Tilak Memorial Trust: Rs.25,000: S.A. Dar Communist Leader, Public Service.

Nehru Award: Instituted by Governm of India, the Jawaharlal Nehru Award International Understanding carries a c prize of Rs. 15 lakh, a citation and a scrol honour: Olof Palme, former Swedish Pri Minister (posthumous).

Former Winners:

1978: Most Ven Nichidatsu Fuji
1979: Nelson R. Mandela
1980: Barbara Ward
1981: Gunnar Myrdal and Mrs. Alva Myr
1982: Dr. Leopold Sedar Senghor
1983: Dr. Bruno Kreisky
1984: Mrs. Indira Gandhi (Posthumous)

U Thant Award: The award origin established by U Thant and named after since his death, is made to an outstand personality who through his or her efforts contributed to the enhancement of cult understanding and development between tions.

Mrs. Indira Gandhi received the Award 1982.

Past recipients of the award include Dr Radhakrishnan, Prof. Arnold Toynbee, Barbara Ward, U Nu, Mr. Lester Pearson, Adlai Stevenson and Mrs. Nancy Wildon Ro

Third World Prize: The Third World Fou ation Prize of $100,000 for 1985 was given South-African black nationalist leader, Nels Mandela and his wife Mrs. Winnie Mandela.

'Beyond War' Prize: Six heads of state, cluding Prime Minister Rajiv Gandhi have be

honoured by California-based 'Beyond War' pacifist organisation in 1985.

The six leaders—from Mexico, Argentina, India, Sweden, Greece and Tanzania—won the "Beyond War" prizes for their participation in a five-continent peace initiative introduced in India in January 1985.

The six heads of state, who signed the New Delhi declaration for disarmament and peace are Mexican President Mr. Miguel de La Madrid, Argentine President Mr. Raul Alfonsin, Prime Minister Mr. Rajiv Gandhi, former Swedish Prime Minister Mr. Olof Palme, the Greek Prime Minister Mr. Andreas Papandreou and the former Tanzanian President Mr. Julius Nyerere.

Viswa-Gurjari National Award: Dr. Rajendra Vyas, Bomaby.

Olof Palme Prize for World Peace: Cyril Ramaphosa, leader of S. Africa's National Union of Miners.

Mahatma Gandhi World Peace Award: From the Gandhi Memorial International Foundation, New York: Ryoichi Sasakawa, Japan. Previous winners: Mother Teresa, Jimmy Carter, Mrs. Corazon Aquino.

Peace-Messenger Award by the U.N.: The Bharat Scouts and Guides and Gujarat Vidyapith.

Martin Luther King Non-violent Peace Prize: Corazon Aquino.

World Justice Award: Justice Nagendra Singh, Indian President of the International Court of Justice, The Hague.

Environment

Right Livelihood Award: '87: Instituted by Swedish-German writer Jakob Von Uexkull. $100,000: The Chipko movement in India, Prof. Hans-Peter Durr, West Germany, Frances Moore Lappe, U.S. and Mordechai Vanunu, Israel.

Indira Gandhi Paryavaran Puraskar: 1987: Instituted by the Union Government. Rs.100,000: Bombay Natural History Society.

Bajaj Award: By Jamnalal Bajaj Foundation. (Rs. 1 lakh each). 1. Natwar Thakkar, Nagaland for consructive work; 2. Sunit Bonde, Maharashtra for the 'application of science and technology for rural development'; 3. Mrs. Jankidevi Bajaj Award: Mrs. Annapragada C. Krishna Rao, Madras, for contribution to the welfare and uplift of women.

K.P. Goenka Award: For environment: Rs.1,00,000. Rural Agricultural Institute, Narazangaon. Additional award of Rs.50,000: Safai Vidyalaya, Ahmedabad.

Sanjay Gandhi Award: By Sanjay Gandhi Memorial Trust. Given in 3 disciplines. 1 lakh each. Environment and Ecology: Dr. T.N. Koshoo, Botanist. Energy: C.V. Sundaram, Director, Reactor Research Centre, Kalpakkam. Family Welfare and Population Control: Dr. N.R. Moudgal and Dr. B.N. Saxena.

J. Paul Ghetty Award: $ 50,000 (about Rs. 6,25,000): Sir Peter Scott, Founder-Chairman of World Wildlife Fund.

Dadabhai Naoroji Memorial Prize: Dr. Salim Ali, Bombay.

Arts

***Spirit of Freedom* Award:** M. S. Subbalakshmi, the living legend of Carnatic music. Second recipient. First won by Zubin Mehta, noted music conductor.

Lata Mangeshkar Award: By the Madhya Pradesh Government Rs. 1,00,000: Jaidev, Hindi music director.

Tulsi Award: By the Madhya Pradesh Government Rs. 1,00,000: Mani Madhawa Chakyar, Kerala for his contribution to the dance form of 'Koodiyattam'.

Kalidas Samman: By the Madhya Pradesh Government — Rs. 10,000. P.L. Deshpande, Marathi writer, Maqbool Fida Hussain, Painter and Vedantam Satyanarayan Sarma, Kuchipudi exponent.

Oscar Award: At the 59th annual awards offered by American Academy of Motion Picture Arts and Sciences the following were the winners:

Best Picture: Platoon, directed by Oliver Stone who also won the best Director award. The best sound and the best editing awards also went for it.

Best Actor: Paul Newman.

Best Actress: Marlee Matlin for Children of a Lesser God.

Best Screen Play: Ruth Prawar Jhabvala for 'A Room with a View'

Best Picture Award of the Academy of British Film and Television Arts: 'A Room with a View' produced by Ismail Merchant.

Vishwa-Gurjari International Award: Natwar Bhavsar, U.S. resident Gujarathi Painter.

Miss World: Gisella Jeanno Marie Laronde, 23, Miss Trinidad and Tobago. Prize money 30,000.

Miss Universe 1986: Barbara Palacios, 22, Venezuela.
Miss International 1986: Helen Fairbrother, 20, Britain.
Miss India 1987: Priyadarshini Pradhan, Bombay.

Media

Pulitzer Prize: 11th year. International Reporting award: Machael Parks, 'The Los Angeles Times' for his coverage of S. Africa.
Golden Pen of Freedom: By the American Newspaper Publishers' Association: Anthony Heard, Editor of the 'Cape Times', South Africa.
B.D. Goenka Awards: For excellence in Journalism. Rs. 1,00,000 each. A.N. Sivaraman, R.K. Lakshman, S. Sahay and K.N Hazarilla.
Indira Gandhi Media Award: By the Council of Asian Indian Associations, Washington: Sundram Sankaran, Deputy chief of Information and Public Affairs, The World Bank.
Ashok Jain Award: For national awareness advertising Rs. 20,000. Best campaign in English: Miss Harpreet Sawhney, Bombay, for her entry on drug addiction. In Hindi, Prafull Satam of Bombay for his entry on blood donation.
ISA—Khatau Gold Medal: By Indian Society of Advertisers: Advertising Club, Bombay.
Inlaks Journalism Award: By the Inlaks Foundation, London. For Indian journalists under 35, Rs. 1,00,000 in convertible currency: Sekhar Gupta, 'India Today', for his 'considerable investigative skill as well as his versatility'.
The PUCL Journalism for Human Rights Award: 1986: Manimala of 'Navbharat Times'.

National Honours

Bharat Ratna: 1987: 'Frontier Gandhi' Khan Abdul Ghafarkhan. The following are the former recipients: C. Rajagopalachari (1954), S. Radhakrishnan (1954), C. V. Raman (1954), Jawaharlal Nehru (1955), Bhagwan Das (1955), M. Visweswaraiya (1955), Govind Ballabh Pant (1958), D. K. Karve (1958), B. C. Roy (1961), P. D. Tandon (1961), Rajendra Prasad (1962), Zakir Hussain (1963), P. V. Kane (1963), Lal Bahadur Shastri (posthumous) (1966), Mrs. Indira Gandhi (1971), V. V. Giri (1975), K. Kamaraj (posthumous) (1976), Mother Teresa (1980), Vinoba Bhave (1983)

Padma Vibhushan: 1987: Gen. A.S. Vaid Pune (Posthumous), Dr. Benjamin Peary I N. Delhi; Mrs. Kamaladevi Chatopadhya Bangalore and Dr. Manmohan Singh, N Delhi.
Param Vishisht Seva Medal (PVSM): Gen. J.K. Puri, Lt. Gen. Anand Sarup, Lt. G B.P. Singh, Lt. Gen. Tripat Singh, Lt. Gen. N. Narahari, Lt. Gen. I.M. Ahuja, Lt. Gen. L. Kap Lt. Gen. B.C. Nanda, Maj. Gen. J.S. Jaswal, M Gen. K.S. Brar, Brig. Jal Master, Vice Admi I.S. Khurana, Vice Admiral S.M. Gadhiho Vice Admiral S.C. Chopra, Vice Admiral B Mudholkar, Air Marshal S.G.N. Kunzru, I Sikand, S.K. Mehra, N.C. Suri, P.S. George a C.S. Raje.
Prime Minister's Shram Awards: Labour Ministry. Shram Bhushan (Rs. 50,00 Birendra Kumar Guha, Rourkela and J deesha, Bangalore.
National Award for the Welfare of t Handicapped: By the Ministry of Welfa Individual: Baba Amte. Institution: Isaket In tute of Orthopaedics and Rehabilitati Ambala, 2. Viklang Kendra, Allahabad.
Bravery Award: By the Indian Council Child Welfare. Sanjay Chopra Award: Hari Yadav, West Champaran, Bihar. Geeta Cho Award: Krishna Burmen, Cooch Behar, W Bengal (posthumously).
National Youth Organization Award: 1 lakh. By the Ministry of Human Resou Development: P. Subramaniam, President the Nava Prathibha Arts, Sports and Cultu Association, Quilon.
Sahitya Akademi Award: The Sahi Akademi selected 22 books for its 1986 awa The awards include a casket containing inscribed copper plaque and a cheque for 10,000.

The following are the winners:

Assamese: *Benudhar Sarma* (biograph Tirthanath Sarma. Bengali: *Rajnagar* (nov Amiyabhusan Majumdar. Dogri: *Sunne Chiree* (short stories) Om Goswami. Engli *Rich Like Us* (novel) Nayantara Sahgal. Gujara Dhulamani Pagilio (reminiscences) Chandi kant Sheth. Hindi: *Apurva* (poetry) Kedarna Agarwal. Kannada: *Bandaya* (novel) Vyasara Ballal. Kashmiri: *Shibil Kul* (poetry) Dinana Nadim. Konkani: *Hanv Manis Ashvathan* (poetry) Prakash Padgaonkar. Maithili: *Nat Patrak Uttar*, Subhadra Jha. Malayalam: *Ka taduvani* (literary criticism) M. Leelavath

Manipuri: *Mangi Iseî* (short stories) Kh. Prakash Singh. Marathi: *Khoon Gathi* (poetry) N.G. Deshpande. Nepali: *Chakrabyuha* (short stories) Sharad Chhetri. Oriya: *Dwa Suparna* (poetry) Saubhagayakumar Mishra. Punjabi: *Shehar Tegran* (short stories) Sujan Singh. Rajasthani: *Dwaraka* (poetry) Mahaveer Prasad Joshi. Sanskrit: *Sri Radha Charita Mahakavyam* (epic) Kalikaprasad Shukla. Sindhi: *Vichhoro* (short stories) Sundri Uttamchandani. Tamil: *Ilakkiyathukku Or Iyakkam,* Ka. Na. Subramanyam. Telugu: *Andhra Sahitya Vimarsha Angla Prabhavamu,* G.V. Subramanyam. Urdu: *Tanqdueedi Afkar* (literary criticism) Shamsur Rahman Faruqi.

Sangeeta Nataka Akademi Awards, 1986: A Tamara Patra, a citation and Rs. 10,000.

Fellows: Film-maker Satyajit Ray, music director Anil Biswas and singers Hemant Kumar Mukhopadhyay, Komal Kothari, S. Ramanathan and V. V. Swarna Venkatesa Deekshithar.

Carnatic classical music: B. Rajam Iyer (vocal), Nedunuri Krishnamoorthy (vocal), Rajeswari Padmanabhan (veena) and M. Chandrasekharan (violin).

Dance: Krishnaveni Lakshmanan (Bharatnatyam) and Priyambada Mohanty (Odissi)

Theatre: K. T. Muhammed, Satya Prasad Barue (playwriting — Assamese), Alyque Padamsee (direction), Prabhakar Panshikar (acting — Marathi), Pisapati Narasimha Murthy (acting — Telugu) and Khaled Choudhury (scenic design).

Traditional folk and tribal art: K. P. Krishnankutty Poduwal, Jaffer Hussain (Quwwali), Ram Kumar Chatterjee (Shyama Sangeet), Asa Singh Mastana (folk music — Punjab), Bhubaneswar Mishra (Odissi music), Gavari Bhai (folk music — Rajasthan Satyabhambhi Pandharpurkar (Laveni) and Sheikh Nazar (Burra Katha — Andhra Pradesh).

Lalitha Kala Akademi Awards: In painting sculpture, graphics and drawing the following persons won awards. The award carries a certificate and Rs. 10,000 in cash.

Painting: Taj Singh, R. P. Nigam, Umesh Kumar Saxena and R. Umesh. *Graphics:* Sukhvinder Sinh and Pinak Barua. *Sculpture:* J. K. Chillar and S.M. Shahid. *Drawing:* Yusuf.

National Film Awards: In the 34th National Film Awards of 1986, the following were the recipients:

Best Feature Film: 'Thabarana Kathai', Kannada film by Girish Kasaravally; Best Director: Aravindan for his Malayalam film 'Oridathu'; Best Actor: Charu Hassan for his role in the Kannada film 'Thabarana Kathai'; Best Actress: Monisha for her role in the Malayalam film 'Nakha Kshathangal'; Special Jury Award: John Abraham for his Malayalam film 'Amma Ariyan'; Best male singer: Hemant Mukherjee for the Bengali film 'Lalan Fakir'; Best female singer: Chitra for the Malayalam film 'Nakhakshathangal'.

Dada Saheb Phalke Award: For outstanding contribution to the cause of cinema: B Nagi Reddy. Previous recipients: Devika Rani Roerich, B.N. Sircar, Prithviraj Kapoor (posthumous), Pankaj Mullik, Ruby Myers, (Sulochana), B.N. Reddy, Dhiren Ganguli, Kanan Devi, Nitin Bose, R.C. Boral, Sohrab Modi, Naushad Ali, P. Jairaj, L.V. Prasad Durgakhote, Satyajit Ray and V. Shantaram.

POPULATION 5 BILLION

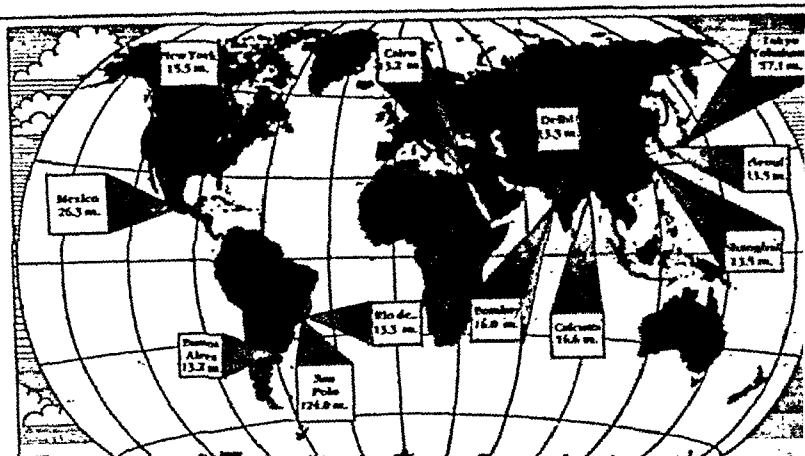
The world population touched 5 billion in the middle of 1987. It will pass the eight billion mark by 2022 and will finally halt at about a century from now at about ten billion, according to the United Nations Fund for Population Activities (UNFPA) report.

In 1987 the world population passed the five billion mark growing at the rate of approximately 1,000,000,000 people every 12 years. The six billion figure will be reached before the end of the century, seven billion by 2010 and eight billion by 2022.

Every minute the number is increasing by 150, every day by 220,000 and every year by more than 80 million. Ninety per cent of the growth is in developing countries.

Today's demographic landscape shows a stark difference between two sets of countries — one with low and one with high population.

In the more developed regions growth has been very slow since the 1970s. The current growth rate of the developing countries is more than three times as high and their proportion of world population is increasing dramatically. Today more [illegible] the world's population



UNFPA says that half of the world population will be living in towns and cities by 20
The above map shows the population of 12 important world cities at that time.

Population Ticking

UN Secretary-General Javier Perez de Cuellar was presented on August 5, 1987 with a "population clock" that keeps track of world population growth and of any one of 157 countries, updated each minute

The clock was the idea of the UN Fund for Population Activities as part of its "World of five billion" information campaign aimed at making world leaders aware of population problems.

The first model was presented to President Lazar Mojsov of Yugoslavia during ceremonies in Zagreb on July 11, 1987 the day the UNFPA calculated the world's population reached the five billion mark.

The fund plans to give a clock to each Head of State or Government.

UNFPA Executive Director Nafis Sadik who made the presentation said the clock was "designed as a compact instrument that could sit on the desk of key people making decisions about population planning."

countries.

About 65 per cent of the annual addi the world population live in the developing countries. This proportic increase to 72 per cent by 2050.

Life expectancy and fall in infant mort developing regions have greatly improv are now about the same as in the developed regions at the beginning of t century.

The developed countries passed the and only billion marker in 1965. T developed countries had already reache first billion by the 1950s. The two ani billion markers for the less developed followed rapidly in 1958 and 1975.

Asia had already passed the one mark before 1950. It is expected to four billion by 2020. The contrast b Africa and Europe (including the Sov ion) is especially striking. Europe pas half billion mark before 1950, while attained it in 1982. But, Africa is expe reach one billion sometime between 2(2010. Europe will probably never read report noted.

In 1950 Africa's population was about that of Europe. Before 2050 it will be three times as large.

Africa is currently growing at rates experienced by other countries. While

other parts of the world have passed the stage of maximum growth, the growth rate of sub-Saharan Africa continues to increase. The fastest growing country in the world is Kenya whose 20 million population at the current rates of growth (four per cent a year) will double by 2005.

These changes in the world population have been accompanied by vast changes in population distribution and structure.

The first billion at the beginning of the 19th century was basically rural, with less than ten per cent living in towns. Currently, more than 1.6 billion people, 40 per cent of wo population, live in urban areas.

Earlier, almost three-quarters of the popu tion in developed regions lived in urban are while in developing countries, the figure v about one-third. The total urban population the less developed regions is now larger th that of the more developed countries. Most the world's largest cities are now in developing regions and are attaining si never dreamed of before.

The 1987 "State of World Population" rep by the UNFPA says "beyond five billion,

China's Birth Rates Rise Again

Birth rates are rising again in the world's most populous nation, as China's monumental birth-control campaign loses its impact, Chinese officials and foreign experts agree.

China's economic restructuring, with its emphasis on personal initiative, seems partly responsible. As peasants grow wealthier, they often are willing to pay the fines imposed for having more children than the government rules allow.

But a second reason is the taming of China's family planning program, following international criticism that it encouraged the killing of female infants and placed pressure on women to abort their fetuses even late in pregnancy.

In 1986, the birth rate rose to about 20.8 births for each 1000 people up from 17.8 in 1985. China ended 1986 with 14.8 million more inhabitants than in 1985, bringing its population to 1.06 billion.

For China, a nation where swarms of bicycles convey people from one crowd to the next, where small family farms are divided smaller and smaller with each generation, recent statistics showing a leap in the birth rate are taken very seriously. That has led to heightened concern among some diplomats and foreign experts about how China might respond.

At the beginning of the 1980s, a vigorous crackdown slashed birthrates that by some projections might have resulted in a Chinese population of five billion or more in the next century.

Yet the crackdown's harshness — putting enormous pressure on women to have just one child or to abort subsequent pregnancies — aroused indignation in the West and led the United States to cut off support for UN population programmes, which play a role in China.

Twenty-two per cent of the world's people live in China, on 7 per cent of the world's arable land. The population density is four times that of the United States and slightly higher than France's, without taking into account the Gobi Desert and other areas that cannot be cultivated.

China reacted to the problem over the last decade with drastic measures. Volunteers monitor the fertility of nearly all women of child-bearing age, sometimes even tracking their menstrual cycles.

Couples are given pay increases of 5 per cent to 40 per cent, plus long maternity leave and better housing, if they agree to have just one child. They are fined heavily, severely criticised by their peers and even risk losing their jobs if they produce more.

Chinese women bear an average of 2.4 children up from 2.2 in 1985. But population experts say the emphasis on limiting couples to one child has been somewhat misleading, except for urban residents.

Urban couples must usually settle for one child, but the rules are more flexible for the nearly 80 per cent of the population in rural areas.

should know that world population is everybody's concern.

The UNFPA document comes close on the heels of the warning by the state of the world 1987 report by the Washington-based World Watch Institute that if governments in developing countries fail to meet the challenge of reducing birth rates of their populations, economic deterioration could eventually lead to social disintegration of the sort that undermined earlier civilizations when population demands became unsustainable.

Population increases have brought problems as well as progress — and their effects are felt very differently in different countries. It illustrates this by looking at the scenario for two hypothetical countries which today l populations of twenty million.

In one country, government policies reducing the growth rate such that the population will stabilise at thirtyfive millic the next century. In the other where the little access to family planning, the population is likely to be around 120 mil

Factors such as the infant mortality rate life expectancy play a critical role in deter ing the future pattern of population gro

The report discusses some of the cu misconceptions about population. One is greater numbers of people will thems resolve any problems created by hi

Baby Boom

Some decades ago, a major problem afflicting developing countries was the high mortality rate. Increased medical facilities have to a large extent reversed this trend. Of special significance is the fact that fertility of women has tended to increase.

The Economic and Social Commission for Asia and Pacific (ESCAP), now warns us that women entering the child bearing age constitute a significant proportion of female population in Asian and Pacific region countries.

Such regions face the possibility of a second generation baby boom which means that even if the number of births per woman declines rapidly the birth rate may stay high. So the total number of births may be greater than before.

Countries like India will have to place greater emphasis on maternal and child health programmes apart from providing family planning in the narrow sense of birth control services. In the long term, ESCAP points out, the baby boom will lead to a rapid increae in population of the younger working age category.

Between 1980 and 2000 the number of persons aged 15-39 will increase by 470 million. The countries affected will have to take the task of structural adjustments in their economies more seriously if the future generation of young people at their pro ductive best, are not to queue up for dole

* * * *

In Singapore it's call for more babie Singaporeans have been warned to pro duce more children or face "calamitou consequences" as a nation.

The country's minister for trade an industry, Mr. Lee Hsien Loong, told seminar that the drop in the total fertili rate among the population was from 1.6 to 1, reports PTI.

"Our population will go into stee decline within one generation and th consequences for the economy, for defenc and survival are all calamitous", Mr. Le the Prime Minister Mr. Lee Kuan Yew's so and a second generation leader, said.

He said one of the reasons for th declining birth rate was that fewer wome were getting married and parents wer having fewer children.

He said the birth rate among Chines who form three quarters of Singapore's 2. million population was the most affecte while that among Indians and Malay remained constant.

The minister said the government woul soon launch a programme to softse parenthood and a three-child family wil the slogan "Have three of more if you ca afford it".

Most Suffering State

Mozambique is the scene of more human suffering than any other nation, while Switzerland is the most comfortable place to live in, according to an analysis by a Washington population group.

The analysis, called the international index of human suffering, was released in March 1987 by the Population Crisis Committee. Using data from a variety of sources, the committee developed a numerical scale of human misery with more than 100 nations rated between zero and hundred.

Among the elements included are the gross national product per capita, inflation rate, labour force growth, increase in urbanisation, infant mortality, per capita calorie consumption, access to clean water, energy consumption, literacy and general personal freedom.

Mozambique, a former, Portuguese colony of Africa's southeastern coast, was rated at 95 on the scale, the most suffering recorded. Angola, on Africa's opposite coast, compiled a 91 and was the only other nation with a misery rating of over 90.

At the other end of the scale, Switzerland was given a misery rating of only four.

The United States had the fifth lowest misery rating with a score of eight. Others in the best five were West Germany, Luxembourg and the Netherlands.

The ratings of human misery generally ran parallel to population growth, with nations gaining people the fastest being those with the most suffering.

Rapid population growth "is a general underlying factor that makes development more difficult and relates to the condition of health, the economy, families and other factors", he said.

The ratings were developed by scoring each nation between zero and ten in ten categories of potential human misery. Little or no misery rated a zero, and the most misery rated a ten. Then the categories were added up.

population densities — since adding to the number of people also increases the stock of human ingenuity and resourcefulness.

Not necessarily so, says the report citing several historical examples, including the decline of the Mayan civilization in Central America and the population pressure on land in China which actually blocked the arrival of an industrial revolution there.

Successful countries now-a-days are often those which have adopted policies of population planning. "The combination of replacement level fertility in the Republic of Korea and the country's place in the vanguard of the newly industrialising countries is not a coincidence."

Another argument which the report counters is that population growth is economically neutral — that it does not affect economic growth for good or ill.

The UNFPA responds that there is a clear relationship between lower levels of fertility and per capita income and illustrates this with the contrasting experience of Brazil and Japan.

In 1975 Brazil's Gross National Product was $900 per person compared with $1400 for Japan. The countries have had similar growth rates but while the GNP in Brazil is now only $2000, that for Japan is $16,000

Brazil's much higher fertility rate, says the report, gobbled up many of the fruits of her economic expansion.

The report also counters the notion that population growth is environmentally neutral — that it does not affect the balance between humanity and nature. Deforestation and species extinction are strong evidences to the contrary.

Developing countries are now planting 10 to 20 times fewer trees than they are using, one of the major causes being increasing demand for firewood in high population density developing countries. Species of plants and animals are also under threat, with the world likely to be losing upto hundred different species every day by the year 2000

There have been many successes in slowing

population growth, says the report. But much more needs to be done — particularly in those countries where population growth is adversely affecting economic development. And in countries, improving the status of women have a vital part to play in reducing family s

TOWARDS DISARMAMENT

Agreement in 1987 between the United States and the Soviet Union to scrap the medium and short-range nuclear weapons from Europe is a milestone in the progress towards total disarmament.

The agreement on eliminating Intermediate range Nuclear Forces (INF) rather than controlling it has been hailed as a historic step towards total decommissioning of strategic weapons stockpiled and deployed around the world.

Under the deal, some 1000 medium and shorter range missiles between the range of 500 km and 5000 km would have to be abolished. Thus while the United States would have to dismantle 108 Pershing 2's from West Germany and 256 Cruise missiles based in Britain, West Germany, Italy and Belgium, the Soviet Union would have to get rid of 441 SS-20's aimed at both Europe and Asia, 112 SS-4's and 130 SS-12's, some of which are based in East Germany and Czechoslovakia.

The ticklish problem vis-a-vis the Pershing 1 A's in West Germany has been resolved with Bonn agreeing to eliminate its 72 missiles and return the warheads to the United States by the time the top powers' medium range missiles are eliminated.

There is a sigh of relief in the international community that the two major world powers are moving in a direction that is conducive to world peace and stability. Although sceptics argue that an INF accord cover only less than 5 percent of the top powers' nuclear arsenal, it has to be borne in mind that for the first time in the nuclear age, the two sides have reached an agreement on the elimination of an entire class of nuclear weapons.

But what the agreement demonstrate is that it is possible for nuclear weapons to be removed without any catastrophic consequences for either country's security.

Although considerable progress is said to have been made on the question of the long-range missiles, both Washington Moscow continue to disagree on the issu the Strategic Defence Initiative or the Wars. While the US Administration is de mined to push ahead full steam with the the Soviet Union has been calling for way strengthen the ABM treaty — it wants the sides to adhere to the 1972 treaty for a pe of 10 years.

However, even in the realm of sp weapons, there seems to be some n flexibility on the part of Moscow — if all al there was the insistence that SDI should confined to the laboratories, it is now an able to some very limited testing.

The following are the existing disar ment treaties:

Limited Test Ban Treaty: Signed on Augu 1963 by the U.S and the Soviet Union since co-signed by 140 other countries, Limited Test Ban Treaty outlaws nuclear under water, in the atmosphere or in sp Verification is mostly by satellite; Washington and Moscow have accused other of breaching the treaty by allow radioactive leaks into the atmosphere.

Outer Space Treaty: Signed on January 1967 by the two global powers and su quently by 85 other States, the Outer Sp Treaty bans "nuclear arms or other weap of mass destruction" from space. The trea mostly verified by radar. There have been breaches so far, but SDI would be a mas one.

Non-Proliferation Treaty: The NPT signed on July 1, 1968 by the two, gl powers, and later by 114 other countrie restricts nuclear weapons to the Soviet Un the U.S., Britain, France and China. Verifica is by the International Atomic Energy Age

Anti-Ballistic Missile Treaty: The ABM Tr was signed on May 26, 1972 by the U.S. and Soviet Union. Mostly verified by sate cameras, this pact in its revised form, li

ABC OF WAR AND PEACE

Here is a list of the most essential acronyms for a student of War and Peace.

ALCM: Air-Launched Cruise Missile.
ABM: Anti Ballistic Missile.
ASAT: Anti Satellite Satellite.
BMD: Ballistic Missile Defense.
C3: Command, Control and Communication.
CD: Conference on Disarmament.
CIA: Central Intelligence Agency.
COPUOS: Committee on the Peaceful Uses of Outer Space.
DOD: Department of Defence.
ELP: Extremely Low Frequency.
EAM: Emergency Action Message.
EMP: Electro-Magnetic Pulse.
GPS: Global Positioning System.
ICBM: Inter-Continental Ballistic Missile.
IKON: Improved Key hole photo reconnaissance.
IMEWS: Integrated Missile Early Warning Satellite.
INF: Intermediate range Nuclear Force.
IONDS: Integrated Operational Nuclear Detection System.
MAD: Mututal Assured Destruction.
MBFR: Mutual and Balanced Force Reduction.
NAVSTAR: Navigational Satellite.
NORAD: North American Aerospace Defence Command
NASA: National Aeronautics and Space Administration.
NSA: National Security Agency
RORSAT: Radar Ocean Reconnaissance Satellite.
SAC: Strategic Air Command
SAR: Synthetic Aperture Radar
SIGINT: Signals Intelligence
SONAR: Sound Navigation And Ranging
START: Strategic arms control negotiations.
SLBM: Submarine Launched Ballistic Missiles.
SLCM: Sea-Launched Cruise Missiles
TACAMO: Take charge And Move Over
VLF: Very Low Frequency.

both countries to one ABM site, either in the capital or on a border, with no more than 100 launchers. Moscow says SDI research is a breach, but Washington says the pact does not forbid research.

SALT-1: Also signed by the U.S. and the Soviet Union on May 26, 1972, this treaty froze some warhead totals and reduced planned increase in others. It was mostly verified by satellite.

Threshold Test Ban Treaty: Signed by the two global powers on July 3, 1974, this limits underground nuclear tests to 150 kilotons and is verified by seismic sensing, like earthquakes. Each side has accused the other of breaches.

Peaceful Nuclear Explosions Treaty: Signed by the U.S. and the Soviet Union on May 28, 1976, this permitted on-site inspections of peaceful nuclear explosions, which the Soviet Union uses for tunnel and dam building. Nuclear explosions for construction are forbidden in the U.S.

SALT-2: This treaty was signed by the two global powers on June 18, 1979 and so far has been observed — although not ratified — by the U.S. It was the first treaty to bring about real cutbacks in nuclear inventories, but had the feature of limiting "launchers" rather than warheads, thus encouraging MIRV (Multiple Independently-Targeted Re-entry Vehicle) technology. SALT-2 has been mostly verified by satellite.

Anti-nuclear protest in Europe.

The existing non-nuclear treaties are

Geneva Protocol: Signed by most major countries in Geneva on June 17, 1925, and now co-signed by a total of 119 States, this prohibits the use of poisonous gases or biological weapons. Verification of stocks has not been possible. The protocol was broken by Italy in Ethiopia in 1935 and 1936 and by Japan in China in 1936. Britain planned to "gas the beaches" if Germany invaded in 1940. The U.S. used defoliants and possibly cancerous herbicides in Vietnam, while Moscow is alleged to have supplied chemical weapons to Kampuchea and Afghanistan. Iraq used chemical weapons in 1984 and 1985 against Iranian troops on its soil.

Biological Weapons Convention: Signed by the two global powers on April 10, 1972 and since co-signed by 88 other countries. It bans production and stockpiling of biological weapons. No breaches have been alleged so far.

The following are the treaties under negotiations:

Strategic Arms Reduction Treaty: The START talks continue intermittently in Geneva. If successful, the treaty would lead to substantial reductions in nuclear weapons stocks.

Anti-Satellite Weapons Ban: These global power talks to prohibit all anti-satellite weaponry were suspended by the U.S. in 1980 on the grounds that the Soviet Union already had anti-satellite weapons and that a freeze would be to Moscow's advantage.

Comprehensive Test Ban: These tripartite talks involving the two global powers and Britain were also suspended by the U.S. in 1980. They were intended to prohibit all nuclear explosions, but Washington complained that full verification was not possible. The Soviet Union began a voluntary unilateral moratorium in August 1985 and then extended it until January 1, 1987 in the hope of persuading the U.S. to join it, apparently in a

For Whom the Bell Tolls

Between three and five million people were killed in 36 wars raging around the world in 1986, according to the Stockholm International Peace Reasearch Institute.

In a yearbook titled World Armaments and Disarmament, *the Institute said 1986 was a year of extreme contrasts in the nuclear weapons field.*

Although the United States and the Soviet Union agree in principle to reduce their nuclear weapons, they continued their arms modernisation programmes.

The leaders of Britain and France made it clear during 1986 that they had no intention of eliminating their nuclear forces, regardless of what the superpowers did.

Twenty-three nuclear test blasts were conducted in 1986, the fewest since 1960.

The United States conducted 14, France eight, and Britain conducted one jointly with the U.S.

The Soviet Union observed its unilateral moratorium on nuclear testing throughout the year. China did not conduct any nuclear weapons test in 1986, and in March announced that it would not test in the atmosphere in future.

Referring to space weapons, the year book said military uses of space developed along two lines in 1986: Satellite launches and the development of systems for strategic defence purposes.

The Soviet Union launched reconnaissance satellites with longer lifetime than previously. The number of such satellites launched in the future would presumbaly decrease if this trend continued, the year book said.

Continued tests in space would add man-made debris that increases the risk of collision with satellites, it said. Several such incidents have already occurred.

Arms transfer scandals during 1986 characterised the changing world arms market.

Despite severe economic problems, Third World countries received about two-thirds of the global flow of major weapons. With the United State's 33.3 per cent share and the Soviet Union's 31.4 per cent, the two countries dominated global arms sales.

Spending on military research and development, which is heavily concentrated in a few developed countries, had risen rapidly in the 1980s, the SIPRI said. It could be one-third higher in 1986 than it was in 1980.

Perhaps the only real success in arms control during the year was the conclusion of the conference on disarmament in Europe, in which 33 European nations and the United States and Canada agreed to a set of politically binding measures regarding military activities in Europe, the Institute observed.

bid to stop the development of Midgetman and the SDI.

Chemical Weapons Ban: These U.S. Soviet talks were suspended by the U.S. in 1982 on the grounds that the Soviet Union was "expanding" chemical weapon manufacture, forcing it to do likewise. Experts believe if the talks are revived, they may reach agreement, but will have difficulty getting smaller powers to co-sign. A chemical weapons ban is currently under discussion in the 40-nation Conference on Disarmament in Geneva.

NAM—BULWARK OF PEACE

The 25-year old Non-Aligned Movement seems to have come of age. Being the greatest peace movement on earth holding together 101 nations representing two thirds of the humanity, NAM shed its passive role to declare "the final assault on apartheid" in 1985.

NAM held the 25th anniversary session in African soil specially with this aim. Capital of Zimbabwe, one of the states, hosted the 7 day summit, w

saw the Indian Prime Minister Rajiv Gandhi handing over the Chairmanship of the movement for the next three years to Prime Minister Robert Mugabe.

Since the founding of the movement at Belgrade on September 1, 1961, the NAM has come to represent the voice of an overwhelming segment of mankind. Since its inception, it has emerged as the bulwark of peace, a shield against external pressures and a catalyst for a new world economic order based on equality and justice.

Harare summit signalled an intensification of the battle against apartheid, vestiges of colonialism, foreign interference and unjust economic order

Among the major conflicts that drew the attention of the NAM summit was the six year old war between Iran and Iraq. Nearly every major trouble spot in the world featured in NAM summit – Lebanon, Afghanistan, Nicaragua, Libya, Sri Lanka, Morocco, Vietnam and Kampuchea

Harare summit adopted a package of stiff 'economic measures' against South Africa to compel the racist regime to dismantle its obnoxious system of apartheid

A special declaration on Southern Africa, unanimously approved by the summit, made it clear that the measures contained in the package would be applied against Pretoria pending the adoption of "comprehensive and mandatory" sanctions by the United Nations Security Council.

The summit urged the United Nations to take such a step without any further loss of time.

The package contained, among other measures, prohibition of transfer of technology to South Africa, cessation of export, sale or transport of oil, snapping of air links, and termination of any visa free entry privileges and promotion of tourism to South Africa

The summit demanded a special session of the UN General Assembly to ensure the independence of Namibia. It also set up a committee comprising member countries to plead the case of Namibia in the UN.

It set up a committee of Foreign Ministers to visit the United States, Britain, West Germany and Japan to persuade the governments to agree to the imposition of sanctions against South Africa

India is included in both the comm

The countries agreed to contribute ously to the proposed solidarity fu Southern Africa. They rejected the US pc constructive engagement with Pretori

The summit adopted "the Harare app disarmament" and the reports of the p and economic committees.

Zimbabwean Prime Minister Mugabe, who took over as NAM ch from Prime Minister Rajiv Gandhi, closing address made an appeal to Ir Iraq to put an end to their tragic co

The need for south-south co-operati stressed and Dr. Mugabe welcomed the lishment of the independent commis the south under the chairmanship of Tanzanian President Julius Nyrere.

The Harare summit demanded imm intensification of the struggle against 10 fied evils afflicting the international co ity – imperialism, colonialism, neoco ism, apartheid, racism, zionism, all fo destabilisation, foreign occupation, d tion and hegemonism.

Further, short of supplying arms, the of the 101 non-aligned countries pled extend all support, in every other form liberation movement in Southern Afr

On the economic front they called fo to the growing protectionism and mo external debt crisis.

A 25-member committee of Foreign ters has been constituted to work out a action to bring about an international mic order based on justice and equ

The summit called for the creation *Africa fund* A nine-member con headed by India has been constituted mobilisation of the fund, to extend sup the front line states and strengthen economies in the face of sanctions an ble economic retaliation by South A

The committee for mobilising and ing the Africa fund will be chaired Gandhi. The vice-chairman will be Z President Kenneth Kaunda. The othe bers are Algeria, Zimbabwe, Nigeria, Argentina, Yugoslavia and Peru.

NAM, torch bearer of the third worl views itself as an alternative bloc of na

established on September 1, 1961, in Belgrade, Yugoslavia. Since then, its membership has quadrupled to encompass two-fifths of the world's people.

Jawaharlal Nehru former Prime Minister of India had been its first and greatest apostle. As early as March 1947, Nehru said, "For too long, we of Asia have been petitioners in western courts and chancellories. That story must now belong to the past. We propose to stand on our own feet... We do not intend to be playthings of others." It was in fact the late V. K. Krishna Menon, India's delegate to the UN and later Defence Minister, who coined the very expression 'Non-Aligned'.

Here is the background that led to the formation of the Non-Aligned Movement. After the second world war, the USSR and the USA emerged as superpowers. Meanwhile colonial imperialism also started to recede. India and Burma became independent in 1947. Indonesia followed suit in 1949. In Africa many big countries threw off the colonial yoke. Lesser countries in Africa, Asia and the Pacific also became independent one after the other.

The superpowers tried to win over as many new States as possible to one or the other of them. This attempt brought in what has been called a 'cold war' between USSR, which championed the socialist countries and USA who posed as the leader of free democracies. It is against this cold, bleak atmosphere that Nehru put forth his idea of non-alignment.

A conference of likeminded Asian countries became the forum for the birth of the movement. The conference at Bandung (Indonesia) in April 1955 opened the era of a common agreement among all Asian nations to keep aloof from international complications and to settle matters among themselves on certain principles. The principles adopted at the Bandung Conference were later known collectively as. *Panch Sheel. They were: (i) Mutual respect for each other's territorial integrity and sovereignty, (ii) Mutual non-aggression, (iii) Mutual non-interference in each other's affairs, (iv) Equality and mutual benefit and (v) Peaceful co-existence.*

The ideas propounded at Bandung were given a practical shape at Brioni in Yugoslavia at a meeting of Nehru (India), Marshal Tito (Yugoslavia) and Col. Nasser (Egypt) in July 1956. In pursuance of the decisions taken at this informal meeting of the three great leaders, the first Summit Meeting of the Non-Aligned countries took place at Belgrade (Yugoslavia) in Sept. 1961.

The growth of the Movement was phenomenal. From a mere 25 countries who joined the Belgrade summit (1961) the number increased to 101 at the Delhi summit (1983). It rose to 101 by September, 1985 when the Non-Aligned Foreign Ministers met to decide on the venue of the 8th Summit in 1986.

The basic principle of non-alignment was explained by Nehru thus "...we propose as far as possible to keep away from power blocs or groups aligned against each other... we propose to keep on the closest terms of friendship with all countries. We shall be friends of America and intend co-operating with them. We intend also to co-operate fully with the Soviet Union."

A list of previous summits:

Belgrade, September 1–6, 1961. President Josip Broz Tito of Yugoslavia was chairman and 25-member countries took part.

Cairo, Egypt, October, 5–10, 1964. The Egyptian president, Mr. Gamal Abdel Nasser was chairman and 47 countries participated Eighteen new members from Africa reflected the breakaway from colonial rule.

Lusaka, Zambia, September 8–10, 1970. President Kenneth Kaunda, one of Africa's new leaders and now an elder statesman in the continent, was chairman and 53 nations took part.

Algiers, Algeria, September 5–9, 1973. The Algerian President, Mr. Houari Boumediennne was chairman. Participating were 75 countries with full membership, along with 15 guerilla movements from 12 countries.

Colombo, Sri Lanka, August 11–14, 1976. The Sri Lankan Prime Minister, Mrs Sirimavo Bandaranaike, the non-aligned movement's first woman leader, was chairman and 85 countries took part.

Havana, Cuba, September 3–9, 1979. The Cuban president, Mr. Fidel Castro was chairman of the first non-aligned summit in Latin America. Ninety-four countries were represented as full members.

New Delhi, March 7–11, 1983. The meeting of 101 members was chaired by the Prime Minister, Mrs Indira Gandhi. Mrs Gandhi

who was assassinated in October was succeeded as premier and non-aligned chairman by her son, Mr. Rajiv Gandhi.

Cyprus will be the next venue of the NAM Foreign Ministers' Meeting in 1988, where the question of the NAM Chairmanship for the ninth Summit, scheduled for 1989, will be decided.

THE UNITED NATIONS

The United Nations past 40, whatever its failures, still remains the hope and conscience of the world, more especially of the smaller nations among its 159 members. The UN and its 17 independent specialised agencies and 14 major Programmes and Funds embrace almost every man in every corner of the globe

On the occasion of 40th anniversary, 100-odd Presidents and Prime Ministers, Kings and dictators gathered at the 39-storied world ...anisation headquarters by the New York's t River, in September 1985

he historic anniversary session of the neral Assembly was attended by U S Presit Ronald Reagan, British Prime Minister rgarette Thatcher and Prime Minister Rajiv ndhi. The Soviet Union was represented by ir new Foreign Minister, Eduard Shevardze.

The UN was founded to maintain peace and urity in a world that had just passed ough a devastating war and nuclear nbing.

'orty years later, although there has been world war yet, numerous smaller wars and iflicts still rage or smoulder and the powers divided over the threat posed by the lear weapons.

The world is also riven by differences ween the rich and the poor—between veloped nations and developing nations—r the need to bring about a new internaal economic order.

A major issue that dominated the iversary session was the apartheid regime outh Africa which has been the scene lately he increasingly bloody confrontations been the depressed African people and the iority white rulers.

The common theme in the speeches of Rajiv ndhi, Chinese Premier Zhao Ziyang, and nas, the French Foreign Minister, among ers, was the imperative need for mankind tep back from the nuclear brink. The US sident, while not hiding his distaste for Marxism-Leninism's "war with people" aroun the world, said he sought a "fresh start" i US-Soviet relations despite deep and abidin differences. Soviet leader Mikhail Gorbache in his message called for ending the arms rac on Earth and preventing it in space, in a obvious reference to Reagan's *Star Wa* programme.

Rajiv Gandhi pointed to the "wide cracks showing in the present world order and th contradiction between international order an nuclear weapons, freedom and racism, scienc and poverty He commended the six-natio Delhi declaration issued earlier on nuclea disarmament as a "practical programme". M Dumas, however, said that France woul maintain its independent nuclear defenc system until the superpowers give a clear lea in nuclear disarmament.

Japanese Prime Minister Nakasone "apol gised" for Japan's "ultranationalism" that ha led to World War II and promised to fight th revival of militarism in his country. Rajiv spok for the non-aligned movement and the thir world in urging a new consensus on develo ment that will banish hunger and poverty

Even though there were 150 items on th agenda of the anniversary session, everythir submerged in the rhetoric of the worl leaders. Not even a consensus declaratio could materialise.

UN also celebrated the 25th anniversary its decolonisation declaration consecutive with the territory it has tried hardest liberate still far from independence. Sout West Africa or Namibia represents one of t organisation's great frustrations among what generally viewed as its successful effort bring colonies to indepdendence. Since 196 when the UN issued the declaration de-colonisation, 59 territories inhabited by million people have become independent opted to join the comity of independent state

United Nations, an association of sovereig states bound by a Charter to maintain interr

tional peace and security came into being on 24th Oct. 1945. The Charter was signed by the delegates of 50 nations on 26th June, 1945 at San Francisco. The UN has now on its rolls almost all the independent countries of the world.

For a long time China was represented in the UN by Taiwan which styled itself Nationalist China. Communist China which truly represented China was kept out of the UN mainly on account of the US veto.

This anomaly was removed in 1971 by admitting Communist China as the representative of all China in the UN. Red China thus became a permanent member of the Security Council. Taiwan not only lost its permanent seat in the Council but also its primary membership of the UN.

In December 1974 the UN adopted a *Charter of Economic Rights.* This charter consisting of 34 articles is a landmark in the history of UN. It includes the right of each state "to freely exercise full permanent sovereignty over its wealth and natural resources, to regulate and exercise authority over foreign investments within its national jurisdiction and to nationalise, expropriate or transfer the ownership of foreign property".

The 1974 declaration of rights recognised the imperative necessity of reducing disparities between developed, developing and undeveloped countries of the world. It envisaged a New International Economic Order (NIEO). To achieve this new order the UN Development Programme (UNDP) was inaugurated in 1975 under a Director General of Development.

Principal Organs of the UN are: General Assembly, Secretariat, Security Council, Trusteeship Council, Economic and Social Council and International Court of Justice.

Head Quarters: First Avenue, UN Plaza, New York City, N.Y., USA.

General Assembly. The General Assembly of the UN is the nearest that the world has yet come to the visionary 'Parliament of Man'. The Assembly consists of the representatives of all the member states. Each state has one vote but many send 5 representatives. The General Assembly meets at least once in a year. Special sessions may be summoned by the Secretary-General, on a request by the Security Council.

The General Assembly passes the annual [illegible]

A mere loaf of bread...

I was told by one of the World Health Organization experts: "Modern Western man is too inactive. He just doesn't do enough. The human body has been created for a certain amount of physical activity. Normal life means the intake of a certain amount of food which must be balanced with the output of a certain amount of energy."

"We are so inactive," continued the WHO expert, "that we cannot eat little enough. People think two extra pieces of bread per day is neither here nor there. But two extra pieces of bread may make a great difference... And remember: One hundred extra and superfluous calories per day means 36,500 calories per year."

I asked him what a modern executive should do. What sort of life he should lead.

"If he is used to a sporting life, including jogging, he should go on. If not, he should do something. Walking, swimming, even — provided his heart is all right — climbing stairs will do good. He must lead a more physical life than most of them do."

He stopped for a moment. "But it must be remembered that exercise has no lasting effect. It does you no [illegible] good. If you stop, you are no better off than someone who has never done it. So you may as well save yourself the trouble. On the other hand, if you [illegible] derive real benefit, go on and on and on until you collapse."

"I [illegible] [illegible] gloomily. [illegible] likely to collapse [illegible] if one leads an active life [illegible]."

— [illegible]

[illegible]

Important questions are decided by a two-thirds majority and other questions by a smiple majority.

The General Assembly elects the non-permanent members of the Security Council, the members of the Economic and Social Council and the elected members of the Trusteeship Council. The Judges of the International Court of Justice are elected by the General Assembly, in conjunction with the Security Council. The General Assembly elects its own President and Vice Presidents every year.

Present President: Peter Florin, GDR

2. Security Council consists of 15 members, each of which has 1 vote. There are 5 permanent and 10 non-permanent members elected for a 2-year term by a two-thirds majority of the General Assembly. The permanent members have the power to veto any move.

Retiring members are not eligible for immediate re-election. Any other member of the United Nations will be invited to participate without vote in the discussion of questions specially affecting its interests.

The Presidency of the Security Council is held for 1 month in rotation by the member states in the English alphabetical order of their names.

Permanent Members: China, France, USSR, UK, USA. *Non-permanent Members:* Argentina, Japan, West Germany, Italy, Zambia, Denmark, Madagascar, Thailand, Trinidad and Tobago, (until 31 Dec 1988), Nepal, Brazil, Algeria, Senegal and Yugoslavia (until 31 Dec. 1989)

3. Economic & Social Council is responsible under the General Assembly for carrying out the functions of the United Nations with regard to international economic, social, cultural, educational, health and related matters.

The Economic and Social Council consists of 54 Member States elected by a two-thirds majority of the General Assembly. The Council has the following Regional Economic Commissions: ECE (Economic Commission for Europe, Geneva); ESCAP (Economic and Social Commission for Asia and the Pacific, Bangkok); ECLA (Economic Commission for Latin America, Santiago, Chile); ECA (Economic Commission for Africa, Addis Ababa). ECWA (Economic Commission for Wester Asia, Baghdad).

4. Trusteeship Council. The Charter pr vides for an international trusteeship system t safeguard the interests of the inhabitants territories which are not yet fully self-go erning and which may be placed thereund by individual trusteeship agreements. Thes are called trust territories.

All of the original 11 trust territories exce one, the Pacific Islands (Micronesia), admini tered by the USA, have become independe or joined independent countries.

5. International Court. The Internation Court of Justice was created by an internatio al treaty, the Statute of the Court, which form an integral part of the United Nations Charte All members of the United Nations are *ips facto* parties to the Statute of the Court. The are 15 judges.

India's Dr. Nagendra Singh is the prese President of the Court.

The Court has its seat at The Hague, but m sit elsewhere whenever it considers this desi able. The expenses of the Court are borne b the UN.

6. Secretariat is composed of the Secre ary-General, who is the chief administrati officer of the organization, and an internatio al staff appointed by him under regulatio established by the General Assembly. Howe er, the Secretary General, the High Commi sioner for Refugees and the Managing Direct of the Fund are appointed by the Gener Assembly. The first Secretary General w Trygve Lie (Norway), 1946-53; the second, D Hammarskjold (Sweden), 1953-61; the thir U. Thant (Burma), 1961-71; the fourth, Ku Waldheim (Austria), 1972-81.

The financial year coincides with the cale dar year; accountancy is in US$. Budget f 1984-85, $1,587,158,000.

Secretary-General: *Javier Perez de Cuell (Peru),* appointed on 1 Jan. 1982 for a 5-ye term.

The Secretary-General is assisted by Und Secretaries-General and Assistant Secretarie General.

U.N. System. The bulk of the work of t UN, measured in terms of money and perso nel, is aimed at achieving the pledge made Article 55 of the Charter to 'promote high standards of living, full employment a

UN: Milestones in Peace

1945: On 24 October the United Nations is set up.

1947: The General Assembly adopts a plan for Palestine which would, at the end of the British mandate in 1948, partition it into an Arab state and a Jewish state with Jerusalem under UN administration.

1949: Consultations lead to resolution of crisis over access of the West to the divided city of Berlin. A UN agency is created to look after the welfare of Palestinian refugees.

1950: The Security Council calls on member states to help the southern part of Korea repel the invasion from the north.

1951: Convention of refugees is adopted spelling out the rights and international standards for their treatment.

1952: The General Assembly decides to take up the entire question of apartheid.

1953: Armistice in Korea results from UN initiatives.

1954: Quiet and successful negotiations are made for the release of American airmen held POWs in China. ECOSOC Regional Commission for Europe takes up trade relations between different economic systems. The UN High Commissioner for Refugees wins the Nobel Peace Prize.

1955: First International conference on the peaceful uses of atomic energy held in Geneva initiates a broad range of co-operation in the field.

1956: War in the Middle East over the Suez Canal ends with the deployment of a UN peace-keeping force in Sinai.

1958: A UN observer group helps defuse the Lebanon crisis. Another UN agency, the Inter Governmental Organization, sets safety standards for shipping. French Togoland becomes independent after a UN-supervised plebiscite.

1959: UN-supervised plebiscite in the British Cameroons results in a part of the territory being incorporated in Nigeria and the other into the Cameroons.

1960: At the request of the newly independent state of Congo, the largest ever UN peace-keeping force is sent there.

1962: UN plays a key role in resolving the US-Soviet confrontation over nuclear missiles in Cuba. UN takes over administration of West New Guinea before transferring power to Indonesia. An observer mission is sent to aid peace efforts in Yemen.

1963: The UN and Food and Agricultural Organisation (FAO) set up the World Food Programme for needy countries. The Security Council calls for voluntary arms embargo against South Africa.

1964: A UN peace-keeping force is sent to Cyprus.

1965: A UN observer mission helps disengagement of forces after war between India and Pakistan. UNICEF is awarded the Nobel Peace Prize.

1966: The Security Council imposes mandatory sanctions against Southern Rhodesia where a racist white minority government unilaterally declared independence from Britain in 1965.

1967: After war erupts again in the Middle East, the UN adopts a resolution calling for withdrawal of forces from occupied territories and recognises the right to security of all states in the area.

1970: The General Assembly adopts the first internationally agreed set of principles on sea-bed and ocean floor zones beyond national jurisdiction.

1971: The International Court of Justice declares "illegal" the continued presence of South Africa in Namibia. China becomes a "lawful" member state of the UN. Bahrain becomes independent after the UN helps resolve the Iran-UK dispute on the status of the territory. UN organises massive relief measures for Bangladeshi victims of the conflict with Pakistan.

1973: A new peace-keeping force takes up position in the Sinai and Golan Heights.

1977: The Security Council makes arms embargo against South Africa mandatory.

1978: Security Council adopts the plan put forward by five Western countries for the independence of Namibia. A UN peace keeping force moves into Lebanon.

1980: A campaign co-ordinated by the World Health Organization (WHO) results in the eradication of smallpox from the world.

1982: The convention on the Law of the Sea is adopted.

1983: The Secretary-General visits Southern Africa for consultations on Namibia's independence.

1984: The General Assembly adopts a declaration on the critical economic situation and famine in Africa.

1985: Massive famine relief measures are taken up for the people of Africa.

1986: UN organises the earthrun through [illegible] countries for the cause of peace.

1987: The three-week UN conference on the [illegible] armament and development in New York. The Secretary-General visits Iran and Iraq to try to end the 7-year-old Gulf War.

conditions of economic and social progress and development.'

In addition to the 17 independent specialized agencies, there are some 14 major United Nations programmes and funds devoted to achieving economic and social progress in the developing countries.

UNDP—United Nations Development Programme is the world's largest agency for multilateral technical and pre-investment co-operation. It is the funding source for most of the technical assistance provided by the United Nations system, and UNDP is active in almost 150 countries and territories and in virtually every economic and social sector. UNDP assistance is provided only at the request of Governments and in response to their priority needs, integrated into over-all national and regional plans

UNICEF: United Nations Children's Fund, established in 1946 as United Nations International Children's Emergency Fund to deliver post-war relief to children, later renamed United Nations Children's Fund, concentrates its assistance on development activities aimed at improving the quality of life for children and mothers indeveloping countries, during 1983, UNICEF was working in over 110 countries with a child population of some 1,300 m.

Executive Director: James P Grant (USA)

UNFPA—The UN Fund for Population Activities, carries out programmes in over 130 countries and territories. The Fund's aims are to build up capacity to respond to needs in population and family planning, to promote awareness of population problems in both developed and developing countries and possible strategies to deal with them, to assist developing countries at their request in dealing with population problems. More than 25% of international population assistance to developing countries is channelled through UNFPA.

Executive Director: *Nafis Sadik (Pakistan).*

Relief Agencies. Humanitarian relief to refugees and victims of natural and man-made disasters is also an important function of the UN system. Among the organizations involved in such relief activities are the Office of the UN Disaster Relief Co-ordinator (UNDRO), the Office of the UN High Commissioner for Refugees (UNHCR) and the UN Relief and Works Agency for Palestine Refugees in Near East (UNRWA).

UNRWA was created by the General Assembly in 1949 as a temporary non-political agency to provide relief to the nearly 75 people who became refugees as a result disturbances during and after the creati the State of Israel in the former B Mandate territory of Palestine.

Commissioner-General: *Olof Ry (Sweden).*

UNHCR—The office of the United tions High Commissioner for Refu was established by the UN General Asse with effect from 1 Jan. 1951, originall three years. Since 1954, its mandate has renewed for successive five year perio

For its work on behalf of refugees ar the world, UNHCR was awarded the N Peace Prize in 1955 and again in 1981

Headquarters: Palais des Nations, Geneva 10, Switzerland.

High Commissioner: *Poul Hartling nmark).*

Specialized Agencies. IAEA—The I national Atomic Energy Agency, came existence on 29 July 1957. Its statute had approved on 26 Oct. 1956, at an internat conference held at UN Headquarters, York. A relationship agreement links it the United Nations. The IAEA had 112 me states in 1983.

Headquarters: Vienna International Ce PO Box 100, A-1400 Vienna, Austria. a2f26 Director-General: Hans Blix (Swe

UNIDO: United Nations Industrial Dev ment Organization. Agency promoting in rial co-operation and co-ordinating al operations in matters of industrial promo It provides developing and underdevel countries with advice on all aspects of in rial policy. Converted into a specialised ag of UN in 1985.

Headquarters: Vienna International Ce Austria.

Director-General: Domingo Siazon (pines)

ILO—International Labour Orga tion established in 1919 as an autono part of the League of Nations, is an governmental agency with a tripartite ture, in which representatives of governm employers and workers participate. In 1

was awarded the Nobel Peace Prize. In 1984 it numbered 151 members.

The ILO consists of the International Labour Conference, the Governing Body and the International Labour Office.

Headquarters: International Labour Office, CH-1211 Geneva 22, Switzerland.

Director-General: Francis Blanchard (France). *Chairman of the Governing Body:* B. G. Deshmukh (India).

FAO—Food and Agriculture Organization. The UN Conference on Food and Agriculture in May 1943, at Hot Springs, Virginia, set up an Interim Commission in Washington in July 1943 to plan the Organization, which came into being on 16th October 1945.

FAO sponsors the World Food Programme (WFP) with the UN.

Headquarters: Viale delle Terme di caracalla, Rome, Italy.

Director-General: Dr. Erdouard, Saouma (Lebanon).

UNESCO—United Nations Educational, Scientific and Cultural Organization. A Conference for the establishment of an Educational, Scientific and Cultural Organization of the United Nations was convened by the Government of the UK in association with the Government of France, and met in London, 1 to 16 Nov. 1945. UNESCO came into being on 4 Nov. 1946.

Director General: Federico Mayor Zaragoza (Spain)

WHO—World Health Organization. An International Conference, convened by the UN Economic and Social Council, to consider a single health organization resulted in the adoption on 22 July 1946 of the constitution of the World Health Organization. This constitution came into force on 7 April 1948.

Headquarters: 1211 Geneva 27. Regional Offices: Alexandria, Brazzaville, Copenhagen, Manila, New Delhi and Washington.

Director-General: Dr. Halfdan T. Mahler (Denmark).

IMF—International Monetary Fund. The International Monetary Fund was established on 27 Dec. 1945 as an independent international organization and began operations on 1 March 1947; its relationship with the UN is defined in an agreement of mutual co-operation which came into force on 15 Nov. 1947. The first amendment to the Fund's articles creating the Special Drawing Rights (SDR) took effect on 28 July 1969 and the second amendment took effect on 1 April 1978.

Headquarters: 700 19th St. NW, Washington, D.C., 20431. Offices in Paris and Geneva.

Managing Director: Jacques de Larosiere (France).

World Bank. IBRD—International Bank for Reconstruction and Development. Conceived at the Bretton Woods Conference, July 1944, the 'World Bank' began operations in June 1946. Its purpose is to provide funds and technical assistance to facilitate economic development in the poorer countries.

Headquarters: 1818 H.St. NW Washington, D.C.

President: Barbar Conable (USA).

IDA—International Development Association. A lending agency which came into existence on 24 Sept. 1960. Administered by the World Bank, IDA is open to all members of the Bank.

IFC—International Finance Corporation, an affiliate of the World Bank, was established in July 1956. Paid-in capital at 30 June 1984 was $544.2m, subscribed by 125 member countries. In addition, it has accumulated earnings of $230.1 m. IFC supplements the activities of the World Bank by encouraging the growth of productive private enterprises in less developed member countries.

President: Barbar Conable (USA)

ICAO—International Civil Aviation Organization. The Convention providing for the establishment of the International Civil Aviation Organization was drawn up by the International Civil Aviation Conference held in Chicago from 1 Nov. to 7 Dec. 1944. A Provisional International Civil Aviation Organization (PICAO) operated for 20 months until the formal establishment of ICAO on 4 April 1947.

Headquarters: 1000 Sherbrooke St. West, Suite 400, Montreal, Quebec, Canada H3A 2R2.

President: Dr. Assad Kotaite (Lebanon). *Secretary-General:* Yves Lambert (France).

Communication. UPU—The Universal Postal Union, was established on 1 July 1875,

when the Universal Postal Convention adopted by the Postal Congress of Berne on 9 Oct. 1874 came into force. The UPU was known at first as the General Postal Union, its name being changed at the Congress of Paris in 1878. In 1980 there were 158 member countries.

Headquarters: Weltpoststrasse r, 3000 Berne 15, Switzerland.

Director-General: Mohamed Ibrahim Sobhi (Egypt).

ITU—International Telecommunication Union. The International Telegraph Union, founded in Paris in 1865, and the International Radiotelegraph Union, founded in Berlin in 1906, were merged by the Madrid Convention of 1932 to form the International Telecommunication Union ITU came into being on 1 Jan. 1934.

Headquarters: Place des Nations, 1211 Geneva, Switzerland.

Secretary-General: Mohammed Mili unisia).

WMO—World Meteorological Organization. A Conference of Directors of the ternational Meteorological Organization (set) in 1873), meeting in Washington in 1947, lopted a Convention creating the World eteorological Organization The WMO was rmally established on 19 March 1951, when e first session of its Congress was convened Paris.

Headquarters: Case Postale 5, CH-1211, eneva 20, Switzerland.

Secretary-General. G.O.P. Obasi (Nigeria).

IMO—The International Maritime rganization, until 1982 known as Inter-overnmental Maritime Consultative Orga-zation (IMCO), was established as a special-ed agency of the UN by a convention drawn) at the UN Maritime Conference held at eneva in Feb./March 1948

Headquarters: 4 Albert Embankment, Lon-on SEI 7SR.

Secretary-General: C. P. Srivastava (India)

World Trade. GATT—The General greement on Tariffs and Trade was egotiated in 1947 and came into force on 1 n. 1948. Its 23 original signatories were embers of a Preparatory Committee ppointed by UN Economic and Social Council draft the charter for a proposed Internation-Trade Organization. Since this charter was never ratified, the General Agreement, tended as an interim arrangement, has inste remained as the only international instrum laying down trade rules accepted by countr responsible for most of the world's trade. Nov. 1983 there were 90 contracting parti with a further 31 countries participating unc special arrangements.

Headquarters: Centre William Rappard, 1 rue de Lausanne, 1211 Geneva 21, Switz land.

Director-General: Arthur Dunkel (Switz land).

WIPO—World Intellectual Proper Organization. The Convention establishi WIPO was signed at Stockholm in 1967 by countries, and came into force in April 19 In Dec. 1974 WIPO became a specializ agency of the UN.

Headquarters: 34, Chemin des Colombett 1211 Geneva 20, Switzerland.

Director-General: Arpad Bogsch (USA).

IFAD—International Fund for Agricult ral Development. The establishment of IFA was one of the major actions proposed by t 1974 World Food Conference. The agreeme for IFAD came into force on 30 Nov. 19 following attainment of initial pledges $1,000 m. and the agency began its operatio the following month.

Headquarters: 107 Via del Serafico, Rom Italy.

President: Abdelmushin Al-Sudeary (Sau Arabia).

Members of the UN

159 members as in 1987

Member	Year of Admissi
Afghanistan	19
Albania	19
Algeria	19
Angola	19
Antigua & Barbuda	19
Argentina*	19
Australia*	19
Austria	19
Bahamas	19
Bahrain	19
Bangladesh	19
Barbados	19

Belgium*	1945
Belize	1981
Benin†	1960
Bhutan	1971
Bolivia*	1945
Botswana	1966
Brazil*	1945
Brunei Darussalam	1984
Bulgaria	1955
Burkina Faso☆	1960
Burma	1948
Burundi	1962
Byelorussia	1945
Cameroon	1960
Canada*	1945
Cape Verde	1975
Central African Republic	1960
Chad	1960
Chile*	1945
China*‡	1945
Colombia*	1945
Comoros	1975
Congo	1960
Costa Rica*	1945
Cuba*	1945
Cyprus	1960
Czechoslovakia*	1945
Democratic Kampuchea+	1955
Denmark*	1945
Djibouti	1977
Dominica	1978
Dominican Republic*	1945
Ecuador*	1945
Egypt*	1945
El Salvador*	1945
Equatorial Guinea	1968
Ethiopia*	1945
Fiji	1970
Finland	1955
France*	1945
Gabon	1960
Gambia	1965
German Democratic Republic	1973
Germany, Federal Republic of	1973
Ghana	1957

† Formerly Dahomey

☆ Formerly Upper Volta

‡ By resolution 2758 (XXVI) of 25 Oct. 1971, the General Assembly decided "to restore all its rights to the People's Republic of China and to recognize the representatives of its Government as the only legitimate representatives of China to the United Nations, and to expel forthwith the representatives of Chiang Kai-shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it."

+ Formerly Cambodia

Greece*	1945
Grenada	1974
Guatemala*	1945
Guinea	1958
Guinea-Bissau	1974
Guyana	1966
Haiti*	1945
Honduras*	1945
Hungary	1955
Iceland	1946
India*	1945
Indonesia‡	1950
Iran*	1945
Iraq*	1945
Ireland	1955
Israel	1949
Italy	1955
Ivory Coast	1960
Jamaica	1962
Japan	1956
Jordan	1955
Kenya	1963
Kuwait	1963
Lao People's Democratic Republic	1955
Lebanon*	1945
Lesotho	1966
Liberia*	1945
Libyan Arab Jamahiriya	1955
Luxembourg*	1945
Madagascar	1960
Malawi	1964
Malaysia**	1957
Maldives	1965
Mali	1960
Malta	1964
Mauritania	1961
Mauritius	1968
Mexico*	1945
Mongolia	1961
Morocco	1956
Mozambique	1975
Nepal	1955
Netherlands*	1945

‡ By a letter of 20 January 1965, Indonesia announced its decision to withdraw from the United Nations "at this stage and under the present circumstances". By telegram of 19 Sept. 1966, it announced its decision "to resume full cooperation with the United Nations and to resume participation in its activities". On 28 Sept. 1966, the General Assembly took note of this decision and the President invited the representatives of Indonesia to take seats in the Assembly.

** The Federation of Malaya joined the United Nations on 17 Sept. 1957. On 16 Sept. 1963, its name was changed to Malaysia, following the admission to the new federation of Singapore, Sabah (North Borneo) and Sarawak. Singapore became an independent State on 9 August 1965 and a United Nations member on 21 Sept. 1965.

New Zealand*	1945	Syrian Arab Republic*‡‡
Nicaragua*	1945	Tanzania††
Niger	1960	Thailand
Nigeria	1960	Togo
Norway*	1945	Trinidad and Tobago
Oman	1971	Tunisia
Pakistan	1947	Turkey
Panama*	1945	Uganda
Papua New Guinea	1975	Ukrainian Soviet Socialist Republic*
Paraguay*	1945	USSR
Peru*	1945	United Arab Emirates
Philippines*	1945	United Kingdom
Poland*	1945	USA*
Portugal	1955	Uruguay†
Qatar	1971	Vanuatu
Romania	1955	Venezuela*
Rwanda	1962	Viet Nam
St. Christopher and Nevis	1983	Yemen Arab Republic
Saint Lucia	1979	Yemen, PDR
Saint Vincent and the Grenadines	1980	Yugoslavia*
Samoa, Western	1976	Zaire
Sao Tome and Principe	1975	Zambia
Saudi Arabia*	1945	Zimbabwe
Senegal	1960	
Seychelles	1976	
Sierra Leone	1961	
Singapore	1965	
Solomon Islands	1978	
Somalia	1960	
South Africa*	1945	
Spain	1955	
Sri Lanka	1955	
Sudan	1956	
Surinam	1975	
Swaziland	1968	
Sweden	1946	

* Original Member.

‡‡ Egypt and Syria were original Members of the Nations from 24 Oct. 1945. Following a plebiscite on 2 1958, the United Arab Republic was established by a un Egypt and Syria and continued as a single member. On 1961, Syria resumed its status as an independent sta simultaneously its United Nations' membership. On 2 1971, the United Arab Republic changed its name to Republic of Egypt.

†† Tanganyika was a United Nations member from 1 1961 Zanzibar was a member from 16 Dec. 1963. Fol the ratification on 26 April 1964 of Articles of Union be Tanganyika and Zanzibar the United Republic of Tang and Zanzibar continued as a single member changing it to United Republic of Tanzania on 1 November, 19

‡ By an amendment of the UN Charter on Aug. 31.

Ambassador Attenborough

The United Nations Children's Fund has taken on *Sir Richard Attenborough*, the British film director, as a UNICEF goodwill ambassador. Also serving in that role are the British actor *Peter Ustinov*, the Norwegian actress *Liv Ullmann*, the Japanese actress *Tetsuko Kuroyanagi* and the American singer *Harry Belafonte*.

Attenborough, 64, director of the Oscar-winning film 'Gandhi', said that some of the proceeds from the premiere this week of his movie "Cry Freedom" would b donated to UNICEF. The film portrays th friendship between *Steven Biko*, the Sout African black activist and *Donald Woods*, white newspaper editor.

It is interesting to notice that in 198 UNICEF revoked the goodwill ambassa dorship given to tennis prodigy Bori Becker of West Germany on account of hi association with the aparthied reigme c South Africa.

WORLD ORGANIZATIONS

Among the international organizations/associations other than the United Nations are the six decade-old Commonwealth and the world's newest regional organization, SAARC—South Asian Association for Regional Co-operation — of India, Maldives, Pakistan, Bangladesh, Sri Lanka, Bhutan and Nepal.

ADB—The Asian Development Bank was initially sponsored by the ECAFE and started functioning in 1966. In 1975, ADB had 27 regional members and 14 non-regional members.

In June 1974, ADB launched the Asian Development Fund (ADF) with a view to providing concessional credits to needy members.

Amnesty International: A world-wide human rights organization with headquarters in London. The Organization began on May 28, 1961 with a newspaper appeal by the British Lawyer Peter Berenson. Now it has more than 5,00,000 members in more than 150 countries. It won the Nobel Prize for Peace in 1977.

Secretary General: Ian Martin (Britain)

The Arab League is the outcome of a national awakening of the Arabs, following the fall of the Ottoman Empire in the First World War. It was formally instituted on March 22, 1945.

The Arab League consists of a Council, a Secretary General and a few permanent committees.

The League considers itself a regional organisation within the framework of the UN at which its Secretary-General is an observer.

Member countries (21): Algeria, Bahrain, Djibouti, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine L.O., Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE, PDR of Yemen, and Yemen Arab Republic.

Secretariat: Tunis
Secretary General: Chedli Klibi (Tunisia).

ASEAN—The Association of South East Asian Nations is a regional organization formed by the governments of Indonesia, Malaysia, the Philippines, Singapore and Thailand through the Bangkok Declaration which was signed by the Foreign Ministers of ASEAN countries on 8 Aug. 1967. Brunei joined in 1984. Its aim is to accelerate economic progress and maintain the economic stability of South East Asia.

Each ASEAN capital has an ASEAN National Secretariat. The central secretariat for ASEAN is located in Jakarta, Indonesia, and is headed by the Secretary General, a post that revolves among the member states in alphabetical order every 2 years. Bureau directors and other officers of the ASEAN Secretariat remain in office for 3 years.

Secretary-General: Phan Wannamethee (Thailand).

Colombo Plan. Founded in 1950 to promote the development of newly independent Asian member countries, the Colombo Plan has grown from its modest beginning as a group of seven Commonwealth nations into an international organization of 26 countries.

Member Countries: Afghanistan, Australia, Bangladesh, Bhutan, Burma, Kampuchea, Canada, Fiji, India, Indonesia, Iran, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, UK and USA.

Headquarters: Colombo Plan Bureau, 12 Melbourne Avenue, PO Box 596, Colombo 4, Sri Lanka.

Commonwealth. The 48-nation Commonwealth represents a third of the nations of the world.

The idea of a Commonwealth of Nations comprising Great Britain, the Dominions and other Territories in the British Empire was first accepted at the Imperial Conference of 1926. In 1931, the Statute of Westminster recognised the status of the Dominions and defined the relations of the British Crown to the Dominions. The other territories were entitled to become members of the Commonwealth on attaining full self-government. In 1947, the office of the Secretary of State for Dominions was abolished and the Secretary of Commonwealth Relations assumed charge.

The Commonwealth has no written constitution which regulates its functions. Its members are autonomous countries associated with

tain, equal in status, in no way subordinate to one another in any aspect of their domestic or foreign affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations.

Some of the members like Canada, Australia and New Zealand recognise the Queen as the titular head of their States and have Governors-General appointed by the Queen on the recommendation of the State Cabinets. Some like India and Sri Lanka, who have elected Presidents of their own as Heads of State, recognise the Queen as the Head of the Commonwealth only.

Members of the Commonwealth are represented in other Commonwealth countries by diplomatic officers called High Commissioners in the place of Ambassadors representing non-Commonwealth countries.

Britain's entry into the European Economic Community or the European Common Market in 1972 has not altered the relations of Britain with the Commonwealth countries, while it has increased the opportunities of Commonwealth countries to negotiate advantageous commercial agreements with the EEC. India, Sri Lanka and Bangladesh have already established co-operative commercial agreements with the Community.

The present member countries of the Commonwealth are as follows:

Australia, Antigua and Barbuda, Bahamas, Bangladesh, Barbados, Belize, Botswana, Brunei, Canada, Cyprus, Dominica, The Gambia, Ghana, Grenada, Guyana, India, Jamaica, Kenya, Kiribati, Lesotho, Malawi, Malaysia, Maldives, Malta, Mauritius, Nauru, New Zealand, Nigeria, Papua New Guinea, St. Christopher and Nevis, Saint Lucia, St. Vincent, Seychelles, Sierra Leone, Singapore, Solomon Islands, Sri Lanka, Swaziland, Tanzania, Tonga, Trinidad and Tobago, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Zambia and Zimbabwe.

CHOGM—Commonwealth Heads of Governments Meet has become an important international event. India hosted the summit in 1983 when Prime Minister Indira Gandhi presided over the deliberations.

Canada hosted the 27th summit in October 1987.

The next summit will be held in Kuala Lumpur.

Headquarters: Marlborough House, Pall Mall, London, SW 1Y 5HX.

Secretary-General: Shridath S. Ramphal (Guyana).

Council of Europe: In 1948 the 'Congress of Europe', bringing together at The Hague nearly 1,000 influential Europeans from 20 countries, called for the creation of united Europe, including a European Assembly. This proposal, examined first by the Ministerial Council of the Brussels Treaty Organization then by a conference of ambassadors, was the origin of the Council of Europe, which is, with its 21 member States, the widest organization bringing together all European democracies.

The Statute of the Council was signed at London on 5 May 1949 and came into force 2 months later. The founder members were Belgium, Denmark, France, Ireland, Italy, Luxembourg, the Netherlands, Norway, Sweden and the UK. Turkey and Greece joined in 1949, Iceland in 1950, the Federal Republic of Germany in 1951 (having been an associate since 1950), Austria in 1956, Cyprus in 1961, Switzerland in 1963, Malta in 1965, Portugal in 1976, Spain in 1977 and Liechtenstein in 1978.

Headquarters: Palais de l'Europe, 67006 Strasbourg, Cedex, France.

Secretary-General: Marcelino Oreja Aguirre (Spain).

COMECON—Council for Mutual Economic Assistance. Founder members are USSR, Bulgaria, Czechoslovakia, Hungary, Poland and Romania. Later admissions were Albania (1949, ceased participation 1961), German Democratic Republic (1950), Mongolia (1962), Cuba (1972), Vietnam (1978). In 1964 Yugoslavia concluded an agreement with CMEA whereby Yugoslavia would participate in the work of some CMEA bodies (at present 21). Afghanistan, Angola, Ethiopia, Laos, Mexico, Mozambique, Nicaragua and the People's Democratic Republic of Yemen attend CMEA sessions as observers.

Headquarters: Prospekt Kalinina, 56, Moscow, G-205.

Secretary: V. V. Sychev (appointed 1983).

ECSC—The European Coal and Steel Community was created in pursuance of a treaty signed by six countries of Europe, in Paris in 1951. The countries were: France, Belgium, the Netherlands, Luxembourg, Federal Republic of

Germany and Italy. The treaty affirmed a closer political union of the six countries and created a common market for coal, iron and steel.

The EEC—The European Economic Community, commonly known as the ECM—European Common Market—was brought into existence by the Treaty of Rome of March 25, 1957, signed by the six countries of ECSC—France, Belgium, the Netherlands, Luxembourg, Federal Republic of Germany and Italy. Later Britain, Ireland, Denmark and Norway signed the treaty of accession, but Norway withdrew. With Greece, Spain and Portugal joining lately the EEC now has a membership of 12 countries,

EEC has become the world's largest and most prosperous trading area, with a population of 320 millions—larger than that of any superpower.

The Treaty of Rome guarantees certain rights to the citizens of all member states (e.g. the outlawing of economic discrimination by nationality, and equal pay for equal work as between men and women) and sets out certain other areas where secondary legislation is to fill in the details.

EFTA—European Free Trade Association was formed in 1960, as the result of a convention signed by seven countries of Europe at Stockholm. The countries were UK, Austria, Denmark, Norway, Sweden, Switzerland and Portugal. This Association was formed on the pattern of the EEC and has the same objectives. The seven countries who formed the EFTA were generally called the Outer Seven, in coutradistinction to the six countries of the EEC, who were called the Inner Six.

Headquarters: Brussels.

The European Free Trade Area (see EEC) has provided common ground for economic co-operation among fifteen European countries—Belgium, France, Germany (West), Italy, Luxembourg, the Netherlands (orginal six of EEC), Denmark, Ireland, UK (who joined the ECC in 1972). Austria, Iceland, Norway, Portugal, Sweden and Switzerland (the remaining members of the EFTA).

EURATOM— The European Atomic Energy Community was formed in pursuance of a treaty signed in Rome in 1957 by the six countries who formed the ECSC and the EEC. The work of the EURATOM is controlled by the same organs as those of the EEC. But the executive powers are vested in a commission of 5 members nominated by the Council of Ministers and advised by a Scientific and Technical Committee of 20 members and an Economic and Social Committee of 101 members. All major decisions are, however, taken by the Council of Ministers which is formed of one minister from each member state. The object of the EURATOM is the development of nuclear energy for peaceful puropses.

Headquarters: Brussels, Belgium.

The European Parliament is composed of 142 parliamentary representatives from the six countries of Europe who are signatories to the Treaty of Paris (1951) which formed the ECSC and the Treaty of Rome (1957) which formed the EEC and the EURATOM. The delega

South Commission Comes Into Being

The South Commission, the latest international organization opened its headquarters in Geneva, Switzerland, on October 2nd, 1987.

Julius Nyerere, former President of Tanzania took over as the Chairman of the 28-member Commission set up by the Non-Aligned Movement. The former Governor of the Reserve Bank of India, Dr. Manmohan Singh, is the Secretary General

Other members include: Cuban Vice President Carlos Rafael Rodriguez, former Jamaican Prime Minister Michael Manley and Ivory Coast businessman Aboubaker Diaby Outta.

"The third-world is disillusioned about the policies imposed by the International Financial Institutions and creditor governments" said Nyerere at the opening ceremony.

Meanwhile, 'The Group of 77', the Third World economic grouping elected Guatemala as its Chairman for 1987. The Group of 77 was founded under the auspices of the UN in 1964 to defend the economic and trade interests of the developing world.

respective legislatures of the member countries in fixed proportions.

Headquarters: Luxembourg.

ESRO— The European Space Research Organization was formally established in 1964 to promote collaboration among European States, in space research and technology exclusively for peaceful purposes. The members are Belgium, Denmark, France, West Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and UK. Austria, Ireland and Norway praticipate as observers.

Headquarters: Paris, France.

The French Community is an organisation like the British Commonwealth. It offers to the French overseas territories, which manifest their will to adhere to it, new institutions based on the common idea of liberty, equality and fareternity and conceived with a view to their democratic evolution. This principle was accepted and promulgated by the Constitution of the (Fifth) French Republic which came into force in 1953.

Independent members of the Community re: 1. French Republic, 2. Central African Republic, 3. Republic of Congo, 4 Gabon, 5 Senegal, 6. Chad, 7. Madagascar, 8. Djibouti.

IATA— The International Air Transport Association was founded in 1945 to promote safe, regular and economical air transport and provide a forum for collaboration. At present there are 40 international airlines (active members) and 19 domestic airlines (associate members).

The Annual General Meeting is the ultimate authority in the Association. The Executive Committee consists of 18 elected members.

Headquarters: Montreal, Canada and Geneva, Switzerland.

INTERPOL: 138-Nation Police Commission, established in 1923, to co-ordinate police activities of participating nations with headquarters in Paris. After a terrorist bomb blast in May, 1986, it was decided to shift the headquarters to Lyons.

NATO— The North Atlantic Treaty Organization. In 1949 the foreign ministers of Belgium, France, Luxembourg, the Netherlands, UK, Canada, Denmark, Iceland, Italy, Norway, Portugal and USA met in Washington and signed the North Atlantic Treaty. Greece and Turkey joined the Treaty in 1951, the Federal Republic of Germany in 1955 and Spain in 1982. Thus NATO is an organization made up of 13 European states, two American states (Canada and USA) and an Asiatic state (Turkey).

The Council is the supreme body of the NATO. It consists of the ministers of member states. The Secretary General is appointed by and responsible to the Council. The Military Committee is the supreme military body of NATO. It consists of the Chiefs of Staff of member states. In 1966 France withdrew from the Military Committee while remaining a member of the Council.

Headquarters: Brussels, Belgium.

Secretary General: Lord Carrington (UK)

OAS— The Organisation of American States. The Charter of the OAS was adopted in April 1948, at the ninth International Conference of American States at Bogota, Colombia.

Twenty-two American countries are members of the organisation, with equal rights, each country possessing one vote. The members are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Trinidad and Tobago, Venezuela and USA. In Jan. 1962 Cuba was excluded from the OAS at a special meeting held at Punta del Este, Uruguay.

Headquarters: Washington DC., USA.

Secretary General: Joao Clemente Baena Soares.

OAU—The organization of African Unity came into being in May 1963, when the heads of 30 African States met at Addis Ababa and signed a charter establishing a common organisation for all African states.

Its chief objects are unity and solidarity among African States, elimination of colonialism and defence of the indpendence of member states. The supreme body in the OAU is the Conference of Heads of States or Governments. The official languages of the organization are French and English in addition to all the native African Languages.

The organization has 50 member-states (1984).

Headquarters: African Unity House, Addis Ababa, Ethiopia, *Chairman:* Dr. Kennath

Kauhda (Zambia). Secretary-General: Dr. Peter U. Onu (Nigeria).

OECD—The Organization for Economic Co-operation and Development was formed in 1961 to replace the Organisation for European Economic Co-operation (OEEC) which was started immediately after the Second World War for the reconstruction of war-ravaged European states. The OEEC was formed in response to an offer of aid from the US Secretary of State Marshall. This aid, since called the Marshall Aid, was to be used to rehabilitate the economies of European states ruined by the war. A conference of European states was held in Paris in 1948 to accept the proposal.

The OEEC changed its name in 1961 as OECD. The change indicates the altered status of the organisation. It is no longer a purely European organisation. USA and Canada have joined it as full members. This has made it an international organization. The aims of the reconstituted organisation are to achieve the highest possible economic development in member countries and to raise the standard of living. The council consisting of the ministers of the member countries is the supreme body of the organization.

Headquarters: Paris, France. Members: 24.

OPEC—The Organisation of Petroleum Exporting Countries was the culmination of a long drawn out tug of war between international oil companies and the petroleum exporting countries. Most of these companies were gigantic cartels controlling production in more than one state. It was in their option to increase or reduce petroleum production in various countries and to manipulate prices. Very often they played one producing country against another by adopting various devices that affected the economy of the producing states without reducing the companies' profits.

The immediate provocation for the formation of the OPEC was provided by the announcement of oil companies that they were reducing the prices of Middle East crude. This meant that the countries concerned would be losing proportionately. A conference called together at Baghdad in 1962 decided to form the OPEC. This conference was attended by the representatives of Iraq, Kuwait, Saudi Arabia (Arab Muslim states), Iran, a non-Arab but Muslim state, and Venezuela, a non-Arab, non-Muslim state in far away South America. These countries at that time controlled 80 per cent of the world oil trade.

Membership (1981). Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. Membership is open to any other country having substantial net exports of crude petroleum, which has fundamentally similar interests to those of member countries.

OPEC Fund: The Fund was established in 1976 to provide financial aid to developing countries, other than OPEC members, on advantageous terms.

Headquarters: Obere Donaustrasse 93, A-1020 Vienna, Austria.

Chairman: Rilwanu Lukman, (Nigeria)

Acting Secretary General: Dr. Fadhil JIAI-Chalabi (Iraq).

Red Cross: International society for relief of suffering in time of war or disaster. International Committee of Red Cross was founded (1863) on advocacy of J.H. Dunant (1828-1910). Delegates from 14 countries adopted Geneva Convention (1864), providing for neutrality of personnel treating wounded etc. Over 100 national Red Cross societies now exist. Awarded Nobel Peace Prize (1917, 1944, 1963).

Headquarters: Geneva

SAARC: South Asian Association for Regional Co-operation comprises of India, Maldives, Pakistan, Bangladesh, Sri Lanka, Bhutan and Nepal. It was launched following the Dhakka Summit in early December 1985. The second Summit was held in Bangalore in 1986 and the third in Kathmandu in 1987 Next Summit will be in Colombo.

Headquarters: Kathmandu, Nepal

Chairman: Nepal.

Secretary General: Abul Ahsan (Bangladesh).

The Warsaw Pact. On 14 May 1955 the USSR, Albania, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland and Romania signed in Warsaw, a 20-year treaty of friendship and collaboration, after the USSR had (on 7 May) annulled the 20-year treaties of alliance with the UK (1942) and

France (1944). This was renewed for another term.

It is estimated (1981) that the armed forces of the Warsaw Pact countries total 4.82 m, including 3.71 m Russians, compared with 4.99 m NATO forces.

From 1962 Albania was no longer invited to the Warsaw Pact meetings although not formally expelled.

Two Soviet divisions are stationed in Poland, 20 divisions in German Democratic Republic, 4 divisions in Hungary and 5 in Czechoslovakia.

Headquarters: Moscow, USSR.

WCC—The World Council of Churches was formally constituted on 23 Aug. 1948, at Amsterdam, by an assembly representing 147 Churches from 44 countries. By 1984 the member Churches numbered over 300, from more than 100 countries.

The World Council was founded by the coming together of several diverse Christian movements. On 13 May 1938 at Utrecht a provisional committee was appointed to prepare for the formation of a World Council of Churches. It was under the chairmanship of William Temple, then Archbishop of York.

Presidium: Dr. Marga Buhrig (Switzerland), Most Rev. W. P. K. Makhulu (Botswana), Dame R. Nita Barrow (Barbados), Bishop Johannes Hempel (German Democratic Republic), Dr. Lois Wilson (Canada), *Metropolitan Paulos Mar Gregorios (India)*, Patriarch Ignatios IV (Syria).

Secretary General: Dr. Emilio Castro (Uruguay).

Office: PO Box 66, 150 route de Ferney, 1211 Geneva 20, Switzerland.

Nuclear Accident Record

1 October 7, 1957: *Sellafield, England Fire in reactor spread radiation throughout Cumbria. At least 39 known to have died of cancer*

2. 1957: *Kasli, the Urals, Soviet Union. Explosion in tanks containing waste from nuclear weapons. Casualties not disclosed*

3. January 3, 1961: *Idaho Falls, Idaho, United States. Reactor went out of control. Three killed.*

4. October 5, 1966: *Detroit, United States. Reactor core meltdown after malfunction. No known injuries.*

5. January 21, 1969: *Lucens Vad, Switzerland. Reactor malfunction and heavy leak into a cavern. No known injuries.*

6. October 17, 1969: *Saint-Laurent, France. Partial meltdown of reactor. No known injuries.*

7. 1974: *Shevchenko, Soviet Union. Reactor explosion. No details.*

8. March 22, 1975: *Decatur, Alabama, United States. Fire burned reactor controls. No injuries.*

9. March 28, 1979: *Three Mile Island, Pennsylvania, United States. Reactor fuel meltdown. Reactor still being decontaminated.*

10. August 7, 1979: *Erwin, Tennessee, United States. Reactor malfunction and uranium leak. About 1,000 contaminated.*

11. April 25, 1981: *Tsuruga, Japan, Reactor malfunction. 45 contaminated.*

12. September 23, 1983: *Constituyentes, Argentina. Reactor accident. 1 killed.*

13. January 6, 1986: *Gore, Oklahoma, United States. Nuclear cylinder burst at plant. 1 killed, 100 injured.*

14. April 26, 1986: *Chernobyl, Soviet Union. 31 killed.*

SPECIAL FEATURE

SRI LANKA: ETHNIC CONFLICT AND THE PROSPECTS OF PEACE

Pronounced hatred and intense antagonism that have come to characterize ethnic relations between Tamils and Sinhalese in Srilanka have no precedence in the Island's history. These relations for centuries were marked by harmonious co-existence notwithstanding the obvious cultural diversity and areas of social incompatibility between the two communities. Exigenceis of British imperial rule did vitiate this harmony to some extent but there was still no antagonism or violence between them.

The responsibility for ethnic alienation between Tamils and Sinhalese lies, in large part, with the process of political and social development in independent Srilanka. Its early signs were visible in the land colonization and rehabilitation schemes of 1948 effected in the eastern province in favour of Sinhalese. An explicit political dimension was added to these signs when S.W.R.D Bandaranaike came to power on the slogan of "Sinhala on"

Bandaranaike's call was more of a no

tactics to outwit his Sinhala rivals. He even lost his life at the hands of a fanatic monk while trying to work out a balanced and permanent solution of the ethnic question in co-operation with the Tamil leader Chelvanayagam. However, by adopting communal tactics to win political competition, he created a vicious source of hatred and political violence which was soon to engulf the Srilankan society. The first Tamil-Sinhala violence broke out in 1956. Since then neither the Sinhala chauvinism has looked back, nor the Tamils have had any respite from discriminatory policies and ethnic violence (recurred in 1958, 1977, 1981 and continuously since 1983) inflicted by the majority community.

The Tamils tried, for more than two decades, to ensure a fair political and economic deal from the Sinhalese but the latter's broken promises and persistent victimization drove them to the demand of a separate State. Admitting this, the election manifesto of Jayawardene's United National Party (UNP) said in 1977·

The United National Party accepts the position that there are numerous problems confronting the Tamil speaking people. The lack of a solution to their problems made Tamil speaking people support even a movement for the creation of a separate State. In the interest of national integration and unity so necessary for the economic development of the whole country, the Party feels such problems should be solved without loss of time.

Behind this manifesto were the hard facts The mean income—per income receiver of Srilankan Tamil dropped from Rs.327 in 1963 to Rs. 309 in 1973. Tamil employment in administrative services declined from 30% in 1956 to 5% in 1970 and almost nil in 1978. Even in clerical services, of the total recruitment between 1977 and 1981 only 4.9% posts went to Tamils. Their representation in armed forces which stood at 4% in 1956 almost disappeared by the end of the 1970s. What was worse, growing discrimination in language and educational policies left no hope for Tamil boys and girls to chart out a decent career. Their frustrations drove them to swell the ranks of separatist forces which, as late as in 1972, had not secured more than 200 votes.

True to the character of the Sinhalese politics, the realization that had drawned on the UNP at the time of 1977 elections, was soon forgotten after coming to power. only the anti-Tamil distortions in Srilank polity and socio-economic context were corrected, but the Jayawardene regime e launched a systematic strategy of coercing Tamils into permanent submission.

The events of July 1983, thus could not h been avoided. Even the outbreak of mass violence did not induce sobering thoughts the administration. The response of the r ime was quite the opposite, to further unlea the forces of violence and coercion agai Tamils under the protection of the State.

There could be many explantations of t but two points deserve particular attenti One objective was to camouflage the a domestic character of Srilanka's fast growi sectarian "bonapartist state" which need legitimacy for its coercive character in i shadow of ethnic violence. But more imp tantly, the Jayawardene regime was in the g of narrowly minded anti-Tamil chauvinists li Prime Minister Premdasa and Cabinet Min ters Cyril Mathew and Athulathmudali.

Their eyes were set on the intra-pa struggle for power after Jayawardene d appeared from the scene. They drew th strength from the sections of powerful vest interests in the Sinhalese community such the Buddhist clergy which aimed at perpetu dominance of Sinhala-Buddhist forces on S lankan polity; the armed forces, which, thou indisciplined and plitically recruited, s prospects of career promotion and person fortunes in an intensifying social conflict a the new Sinhala entrepreneur class whi wanted to prosper at the cost of their Tam competitors.

There is sufficient evidence to show th during the July 1983 violence and ev subsequently Tamil shops and business a industrial establishments were picked up sy tematically for attacks and loot. All these vest interests are the strong proponents of milita approach to the Tamil question which domi ated the Jayawardene regime's policy un recently.

The military approach was occasional tempered by a search for negotiated politic solution. However, neither the Tamil militan nor the Sinhala hawks had any real politic will to accommodate each other. As late as December 1986, President Jayawardene told U.S. Congressional delegation in a closed do

neeting that acceptance of basic Tamil demands would split the ruling party and therefore, was not possible. But the talk of a negotiated settlement" was found politically expedient.

On the one hand it pacified external pressures and kept the Western aid flowing. On the other hand, it gave time to armed forces to equip themselves better for the next round of assault on Tamils. This being devoid of sincerity, it only served the purpose of the military approach.

The assumption of the Srilankan State that it could secure a military solution of the Tamil problem was flawed on many counts. Some of the important factors may be noted in this respect. To begin with, it militated against the time honoured principle of ethnic co-existence and harmony which had sustained Srilanka's plural, multi-racial, multi-lingual and multi-religious social fabric. Attack on this principle alienated Tamils beyond a point of return and logically gave strength to their demand for a separate State.

Military approach of the Jayawardene regime also provoked counter militancy from the Tamils. This soon had impact upon the nature of Tamil struggle for their legitimate demands. The leadership of the struggle, which traditionally remained with middle class based moderate Tamil United Liberation Front (TULF) soon shifted to militant Tamil organisations composed of young school and college drop outs who had hardly had any experience of co-existing peacefully with the Sinhalese.

There came to the fore nearly half a dozen of such organizations of which, the important ones were the LTTE, the Elam Revolutionary Organizations (EROS); the Peoples' Liberation Organization of Tamil Elam (PLOTE), and Tamil Elam Liberation Organization (TELO). As the intensity of violence against the Tamils increased, the value of fighting skills and capacities also increased. This led to an internecine conflict among the various Elam organizations for ultimate leadership of the Tamil struggle. These organizations also differed from each other in their ideologies, social bases, organizational structures, sources of support and guerrilla tactics.

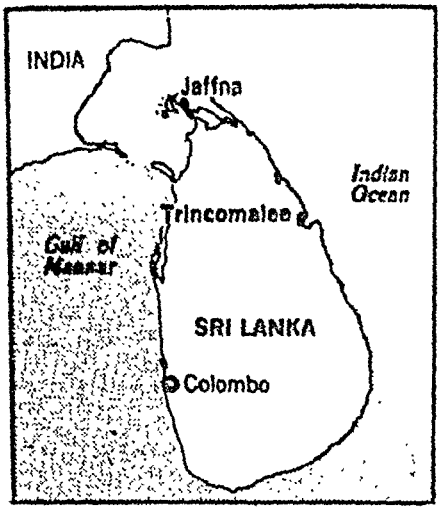
From this internecine Tamil conflict, that continued along with the Tamil-Sinhala violence, the LTTE emerged as the dominant force, much motivated and determined to fight to the finish for the creation of Tamil Elam. This made a negotiated solution all the more difficult to emerge.

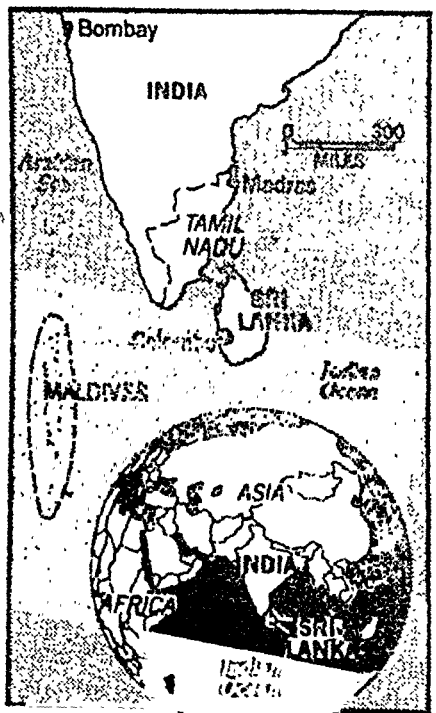
A determined and motivated LTTE made the success of military approach very difficult too. It escalated the cost of war which the Sri Lankan economy could ill afford, at the estimated level of $1m a day. The war seriously affected Sri Lanka's tourist industry, an important source of foreign exchange earning. The growing defence budget required uninterrupted flow of foreign aid but Sri Lanka's aid donors were finding it hard to justify aid to a country under civil war. That is why the Finance Minister became an important voice of moderation.

A third flow of Sri Lanka's military approach was to keep India out of the ethnic crisis as well as the Tamil question. To ensure this, the Jayawardene regime mobilised support from various sources in the West, Pakistan and China. In return the external powers tried to secure a strategic foothold in Sri Lanka. This became evident in the growing involvement of British and American mercinaries, and Israeli intelligence agency (Mossad) on the side of the Sri Lankan forces.

This also led the U.S. to secure expansion of its Voice of America Station in Sri Lanka and to enter into the Trincomalee oil tank farm renovation project through a proxy Singapore firm so as to further long-term American strategic objectives in the region. Prospects of revival of a British-Sri Lankan Defence Agreement of 1948, which was lying as a dead letter since 1956-58, also appeared on the horizon. And Pakistan looked forward to entering into a Treaty of Peace and Friendship with Sri Lanka in return for its help (training and arms supply) in the ethnic war. To China, Sri Lanka appeared as a strategically located market for arms sales.

It was therefore, clear that these external forces were mainly interested in taking advantage of Sri Lanka's ethnic conflict and the resulting tensions between Sri Lanka and India. They were not committing themselves to the Jayawardene regime beyond a point, particularly, if India decided to force issues. As a result, when India air-dropped relief supplies to beleaguered Jaffna Tamils in 1987, international reactions were relatively mild.





President Jayawardene himself admitted that his external friends—he named the U.S. and the U.K.—let him down. This was one of the important reasons which made him sign the Accord with India in July and accept those very terms and even more, which he was resisting since early 1984, suggested by India (Annexure 'C') for the solution of the Tamil problem.

We have noted above that an attempt on Sri Lanka's part to ignore the India factor was a serious flow. It was neither possible nor desirable to keep India out of the ethnic context, since India was the most directly and seriously affected neighbour. Owing to cultural and geographical contiguity between Sri Lanka's Tamils and India's Tamil Nadu, a total of 1,50,000 Sri Lankan refugees took shelter in India causing economic burden and socio-political tensions in Tamil Nadu. This in turn generated pressures on India's Central Government for effective action to save Sri Lankan Tamils.

India also could not remain unconcerned regarding the implications of growing external strategic presence in Sri Lanka, for its own and regional security. India therefore, tried to mediate between the Tamils and the Sri Lankan government for a negotiated political solution as it could neither witness continued violence against innocent Tamils, nor endorse the militant Tamils' demand for a separate Tamil State. Mediation did not succeed because none of the conflicting parties were really prepared for that.

Sri Lanka's military approach collapsed under the weight of its inherent weakness and unrealistic assumptions identified above. Besides, Jayawardene was also worried about the threat, posed to his own political and even physical survival from the hawks in his own party and opponents from outside, if the ethnic war dragged on. This forced him to enter into an Accord with India in July 19 under which his government conceded all the major demands of the Tamils, including the formation of a separate administrative unit of northern and eastern provinces which together constitute a Tamil majority area.

For India, the Accord was not an ideal solution either. Such an accord should have been essentially signed between the three contending parties, the LTTE and the

Lankan government. In the absence of that, India had to undertake the unpleasant task of maintaining ethnic peace in Sri Lanka and also making the LTTE and other Tamil groups fall in line with the accord. But then there was no other viable way out of the festering Sri Lankan crisis which posed a growing threat to India's domestic peace and regional security interests.

The Accord offered the best alternative to an increasingly worsening situation. As a bonus, India got the Jayawardene regime to accommodate its regional security concerns, as in the letters exchanged, Sri Lanka agreed to desist from allowing external forces to build up their strategic presence in the Island. There was obviously American and British endorsement of Sri Lanka's foreign policy concessions towards India.

This could be seen as a calculated gesture on the part of the U.S. towards India so as to secure the latter's acquiescence, if not support, for the American position on larger strategic issues affecting the Indian Ocean, Pakistan and South-West Asia, and nuclear non-proliferation. In the immediate context, the Accord has enhanced India's regional status. Pakistani irritation and China's low key response to the Accord could be seen in this context. The Accord also strengthens the position that bilateral and contentious issues in South Asia should be, and could be, sorted out outside the SAARC framework.

Accordingly, both India and the Jayawardene regime have deep stakes in the implementation of the Accord. The obligations that India has undertaken under the Accord are indeed heavy and troublesome. While President Jayawardene has to deal only with the Sinhala opponents of the accord — the hawks in his own ruling party, Mrs. Bandaranaike and her SLFP, sections of clergy and armed forces and the J.V.P. Sinhala extremists — India has not only to lend support to the Jayawardene regime but also to get the Tamils to implement it.

The operations of the IPKF against the LTTE in October were the first serious manifestation of the underlying challenges in the implementation of the Accord. There is no doubt that Sri Lankan government's insistence on shifting arrested LTTE commanders from Jaffna area to Colombo which led to mass suicide by them on 5th October 1987 precipitated the crisis and almost trapped the IPKF into a situation of fighting with the LTTE.

But the LTTE also had from the beginning, had its reservations about the Accord. And their fickle mindedness on the question of the composition of North-East Council gave handle to the hawks within the Jayawardene government to put pressure on India's role in the Accord. The problem of the LTTE is that it has less than a compact leadership and has known nothing else than carrying on armed struggle against an identified target. They switched on their adversary image from Jayawardene regime to India without even a second thought.

May be a variety of subversive influences that had made deep inroads into the LTTE ranks during its ermergence to dominance are responsible for this. May be that the LTTE was afraid of playing the game of electoral politics expected of it under the Accord and therefore, quickly reverted to the game of gun battle which it had perfected. But then other parties cannot continue to suffer the LTTE indefinitely.

In the situation created by the extensive violations of ceasefire by the LTTE, India had no other option but to direct the IPKF to assert. The only other alternative was to withdraw the IPKF and thus bury the Accord. Indian credibility would then have suffered seriously, not only in Sri Lanka but also in South Asia. The advantages accruing from the Accord would have evaporated and the Rajiv government would have come under heavy pressure within India. Above all, the Sri Lankan hawks would have taken over the Jayawardene regime not only threatening the President and the pro-Accord forces but also innocent Tamils.

The IPKF operations against the LTTE would no doubt cause, strong ripples in Tamil Nadu politics for some time to come. But that would also send correct signals to all the anti-accord forces in Sri Lanka to the effect that India means business. The success of these operations also carry firm message for terrorism in India and the neighbouring countries. Th situation emerging after the end of the oper tions would certainly strengthen moderat forces in Sri Lanka, both among the Tamils an the Sinhalese so as to facilitate slow

gradual return to ethnic harmony in the Island.

The taming of the LTTE challenge by no means marks an end to the difficulties in the road to implement the Accord. The actual working of the North-East Council and the holding of referendum to give it a stable basis will require all the administrative skill and political sagacity that the Rajiv and the Jayawardene governments can employ.

The Jayawardene regime is due to complete its term in an years time. Much would als depend upon the arrangement that succeed the present regime. There are therefore, number of important imponderables tha would shape the fate of the Accord and ethni peace in Sri Lanka. At this stage, one can onl hope that the forces committed to the Accor would succeed in dealing with the forthcom ing challenges. Because in that only lies th interest not only of the Tamils, but also o India and Sri Lanka as an integrated nation.

The surrender of arms in Batticaloa

Part Three
INDIA AND THE STATES

Drought: Economy Can Absorb The Shock More Easily Now

INDIA UPDATE

We have built up a buffer stock of 23 million tonnes of foodgrains and the area under irrigation stands at 62 million hectares against 31 million hectares in 1965.

WHAT India economy needs is definite direc ion and thrust. Efforts a needed to convert the seve drought situation in man parts of the country into a opportunity.

A multi—pronged thru to the economy has becom necessary since the growt rate of gross national pr duct (GNP) in 1986-87 expected to be lower tha the level of 5.1% in 1985-8

Despite several correctiv measures taken by the Ur ion and State Governments the foodgrains production expected to be 135 to -14 million tonnes in 1987-8 showing a fall of 10 to 1 million tonnes over the pr vious year. The rains in th third quarter of the year i many parts of the countr have improved the pro pects of the rabi crop.

The drought in 1987 its considered to be one of the worst the country has faced and certainly worse than the one of 1965, when large food imports had to be resorted to.

But there is a qualitative difference between the situation in 1965 and 1987, in that, the country now has a buffer stock of 23 million tonnes of foodgrains, the area under irrigation stands at 62 million hectares against 31 million hectares in 1965, and Indian agriculture has developed the resilience to absorb the shock of four consecutive years of poor monsoon. This resilience, is sure to prevent too steep a fall in foodgrain production.

As far as cash crops are concerned, while the *cotton crop* is expected to be better, the production of oilseeds is expected to erode further, and the sugarcane production is expected to be maintained.

The cotton output of 1986-87 (September 1986 to August 1987) is likely to be marginally higher, at 100 lakh bales, compared to previous season's level of 95 lakh bales.

The production of *sugarcane* is expected to be around 175 million tonnes in the season (October 1986-September 1987), thanks to the favourable turn the monsoon has taken in Maharashtra. It may, however, suffer in Western U.P. A marginal fall in sugarcane production is unlikely to affect the overall sugar production, which is expected to cross the previous record level of 84.36 lakh tonnes. Moreover, the present sugar policy will enable the industry to divert more sugarcane from jaggery and khandsari to sugar production.

The prospects for *oilseeds* are, however, not too bright. The production is expected to fall sharply next season, from 125 lakh tonnes of the previous season. Considering the shortfall in groundnut, the major oilseed crop, the production is likely to drop below the 1985-86 level of 112 lakh tonnes, although it may not touch the low of 100 lakh tonnes in 1982-83. This is mainly because of increased production of mustard-seeds and rape-seeds, and larger acreage under rabi oilseed crops.

The importance, of achieving a breakthrough in oilseeds production is reflected in the comprehensive package of measures being implemented under the Oilseeds Technology Mission. Oilseeds prices have risen over the years, but this price buoyancy has often not accrued to the farmers. Efforts are,

Indian Per Capita Income Up

The new figures of economic and social indicators as updated by the World Bank *have raised the per capita Indian gross national product from $ 250 (Rs. 3,250) to $ 270 (Rs. 3,510).*

The publication, The World Bank Atlas *1987 gave the Indian GNP per capita as $ 260 in 1984 and $ 250 in 1985. And the latest figures released on September, 30 1987, give the figure for both 1985 and 1986 as $ 270 per capita.*

Pakistan's per capita both in 1985 and 1986 is put at $ 387. It was the same as during 1984.

China's per capita income has been decreased by $ 30. China's per capita GNP both in 1984 and 1985 was $ 310.

The figures released by the World Bank show that while the 1985 figure was $ 310, the 1986 figure is only $ 280.

Bangladesh registered an increase of $ 10 per capita in 1986 — from $ 150 in 1985. Bhutan's per capita was $ 160 in 1985 and it remains unchanged in 1986.

Sri Lanka, in terms of GNP, is comparatively the richest in the subcontinent. Its per capita GNP in 1985 is put at $ 380 and in 1986 at $ 400.

(However accorating to Indian official estimate, the per capita income of the country during 1985-86 was Rs. 2595.6 at current price and Rs. 797.7 at constant (1970-71) prices, it was announced in the Rajya Sabha on November 12, 1987.)

* * * *

The Reserve Bank of India has requested the public to desist from defacing currency notes with slogans, messages, etc. and to handle them with care.

It has also warned the public that under the Legal Tender Inscribed Notes Act 1964 any currency note with slogans and messages of a political nature written across it ceases to be legal tender and the value of such a note cannot be claimed by the holder as of right.

INDIA'S ECONOMIC GOAL SHOULD BE GROWTH-LED EXPORT

L. K. Jha

Ever since independence, we have, in successive plans, been pursuing the triple objectives of growth, social justice and self-reliance. It is my contention that we should, by the end of the century, succeed in having a sustained growth rate of 7% per annum, eradicating poverty and no longer be in need of external financial assistance.

Initially, the main hurdle in the way of raising the growth rate was the paucity of capital. The savings level of less than 10% of the Gross Domestic Product was a major constraint in stepping up levels of investment and raising the growth rate. Through heroic efforts of additional resource mobilization—mainly through massive doses of taxation—we succeeded in doubling the rate of savings in the first quarter of a century of planned development.

But there was no corresponding spurt in the rate of growth. Overall, it stood around 3.5%—which the late Prof. Raj Krishna used laughingly to call the Hindu rate of growth. Although in recent years, there has been an improvement in the trend, growth rate to 4% and higher, it is not good enough. With the present level of investment, around 5% of the GDP, to step up our rate of growth to 7%, we do not need a fresh dose of additional resource mobilization but a more efficient use of capital.

Efficiency in the use of capital is measured either by the Incremental Capital Output Ratio (ICOR), which means how many units of capital are needed to give one unit of output or by asking the same question in reverse. What is the percentage of additional output per unit of investment? Our Incremental Capital Output Ratio or ICOR for the decade of 1960's was 6.4.

Our ICOR is higher than it is in Pakistan or Bangladesh. The ICOR of Indonesia and Brazil is less than 3. Again, looking at the additional output per unit of investment, the figure in India is 15 per cent, in Bangladesh 22 per cent, in Pakistan 28 per cent, in Indonesia 40 per cent and in Brazil 35 per cent. The sad fact is that while in terms of our level of savings we surpass most developing countries, in terms of our rate of growth, we are far, far behind.

The very fact that we were short of capital has encouraged us to rely excessively on capital as the principal resource in all our developmental projects as well as in the pursuit of social justice. We have paid scant attention to land and labour which are equally important resources and are not as scarce as capital. Thus little attention was paid to raising the productivity of land by giving adequate priority to agriculture. It was not until the mid-sixties, when successive droughts drove home the dangers, economic, social and political of the country not producing enough foodgrains to feed our rising population, that we gave to agriculture the importance it deserved. The Green Revolution followed and it is the step-up in the rate of agricultural growth which led to an improvement in the over-all rate of growth, even when the rate of industrial growth was declining.

Even today, there are vast areas in the country where agriculture productivity is still very low. Through policies of land reform, adequate attention to minor irrigation and water management, they can make a significant contribution to raising the growth rate without heavy capital outlays.

With our surplus of manpower and with the very proper concern we feel over the rising level of unemployment, we should have given every encouragement to setting up industries which were by their nature labour-intensive. Instead we made the large capital-intensive industries in the public sector uneconomic by saddling them with far more labour than they needed. As a result, their costs went up and

profits went down, even becoming negative.

I am not arguing against capital-intensive industries as such. It was but right and proper that we began developing our capital goods industries as well as steel and oil refineries because they had to be there to provide the base for the expansion of lighter industries which are labour-intensive. But the tragedy was that when the capacity for producing in the country the machinery for the manufacture of lighter consumer products had been established, the expansion of the latter was kept under leash.

As a result, the machine-building industries had much idle capacity and could not make the contribution to growth which they should have. Thus, we had the sorry spectacle of the country facing a tremendous shortage of cement, which had to be met by imports, while the expansion of the domestic cement industry was hampered by a variety of controls and the capacity for manufacturing cement machinery was largely idle.

Fortunately, many corrective steps have been taken to remove these obstacles to higher growth. Many controls have been liberalised and the process is still continuing. At the same time, some other steps are necessary if liberalisation is to give all the benefits that can accrue from it.

The most important change in policy which I would urge in the interest of accelerating the tempo of growth is to do away with the concept that plan resources are to be committed to new projects only, while the maintenance of old projects has to be taken care of from non-plan resources. Now, if adequate allocations for maintaining the productivity raising the output from old investments could be made out of non-plan resources, there might have been some justification for such a demarcation.

In actual fact, there are some mounting demands on non-plan resources on account of defence, the rising expenditure on the pay and dearness allowances of government servants and interest charges on past government borrowings, which cannot be resisted or curbed. So the availability of non-plan resources for the maintenance of older projects keeps steadily shrinking. In consequence, their output goes down, even while new investments in the same field are being made to get additional output by making much larger outlays on creating new capacity. In order to make efficient use of capital, I suggest that in the allocation of plan resources, the criterion should be of investing capital wherever its contribution to output would be the highest. Here again an example would help.

In order to step up growth rate and lower costs, the induction of fresh technology is essential. This has to be done not just by a symbolic presence of high-tech industries like television and computers but by applying technology to every field of production and at every level of production including literally the grass roots level.

Similarly, in the industrial economy, it can lead to cheapness and improvement of quality by conserving on the use of scarce resources like energy, introducing new designs and improving the quality and durability of every product. Only then can India enter the 21st century with an economy which is strong and self reliant. I therefore welcome the policy of subjecting domestic industry to greater competition, internal and external, by embarking upon, what is loosely referred to as liberalisation.

The basic point to remember is that self-reliance for a country of the size of India must mean much more than a mere balancing of country's payments account by achieving parity between earning and expenditure, by cutting down the latter

(Excerpts from the Govind Ballabh Pant Memorial Lecture)

therefore, needed to strengthen marketing arrangements, which would provide real support to the oilseeds growers.

During the five years 1980-81 to 1985-86, higher growth rate in GNP has been achieved by the *tertiary sector*, as compared to the growth of the commodity producing sectors like agriculture and manufacturing During the period, while the gross value added in agriculture and manufacturing registered growth rates of 2.7 per cent and 5 9 per cent respectively, that in the tertiary sector was 7 4 per cent.

The tertiary sector now contributes 40 per cent of gross domestic product (GDP) Although the growth in the tertiary sector is a sign of growing diversification of the economy, with a growing population, a large country like India will need a vibrant commodity producing sector for achieving economic growth on a sustained basis

Measures to control *population* should be given top priority Family planning incentives provided at present are meagre Some observers feel that the benefits to the society from a cash incentive of even Rs 5,000 per person in this regard would be more than from a expensive programmes like the integrated rural development programme (IRDP)

A major reason for the *drought* is the massive deforestation and subsequent loss of green cover Large scale reforestation programme will have to be taken up.

This is, no doubt, a long-term programme In the meantime, dry farming can be extended. Cropping pattern too can be changed and short duration crop varieties, resistant to water-logging and droughts, can be selected

Strategies for avoiding floods and subsequent destruction, in some parts of the country also needs to be evolved. Simultaneously, hydro generation of power can be augmented by undertaking long-term programmes.

Since the *industrial sector* will have to provide the main support to the Seventh Plan growth rate, in view of the poor performance of the agricultural sector, it has become necessary to ensure that this sector is able to achieve the targeted growth rate.

The new index of industrial production, with its base as 1980-81 has recorded a growth of 8.6 per cent in 1984-85 and 8.7 per cent in 1985-86. During 1986-87, the index is expected to register a rise of around seven cent. Several industries like fertiliser, c saleable steel and jeeps have been facing problem of accumulation of stocks, indicat a mismatch between production and offta The weakening of demand in some industr is attributed to the slackness on the agricu ral front. Some industries have had to f unfair competition from large scale inpu

While some inbalance between capacity demand is unavoidable, in the current stag transition from a protected to a more comp tive environment through which the Ind industry is passing, the industrial sector can expected to achieve resilienace in due cou

While permitting liberalised imports, i necessary to watch the undue strains on country's balance of payments. Timely fis incentives for broadening the market can h many industries. At the same time, incenti for achieving economies of scale of prod tion, employing high technology need to provided in certain sectors of industry.

In the context of the deteriorating *bala of trade* position, concerted efforts are nee to boost exports of non-traditional ite Although exports have shown a rise in current year, the growth rate needs to accelerated.

The *capital market* exhibited mixed tre While approvals and new capital issues w higher than in the previous year, the respo to the new issues in the primary market fr the investors was not-too-encouraging. was mainly because the share — mar behaved erratically during the year. naturally had an adverse impact on the pr ary market.

In recent years, the capital market has b growing steadily. This has enabled large porations in both the private and pu sectors to raise considerable resources financing their rising investment needs. new issues market, which was buoyant du 1985-86, turned cautious subsequently.

There is need to improve the ma structure as well as the systems, procedu and technology to render prompt and effici services to the investors. The stock exchan have undertaken mechanisation and c puterisation programmes. The progress however, quite slow.

The decision to permit private lim

Inflation 7.5% in 1986-87

The country's inflation rate in the fiscal year 1986-87 works out to 7.5 per cent, which is lower than the 8.9 per cent registered in 1985-86, the inaugural year of the seventh plan.

An analysis of the Labour Bureau's consumer price index (CPI) for industrial workers shows that the 1986-87 inflation rate was also considerably lower than every year of the sixth plan (1980-85), except in 1984-85, when inflation touched a nadir of five per cent.

The all-India CPI (1960 = 100) remained stationary at 686 points in March this year, against a rise of five points between February and March 1986. The average for the 12 months ended March 1987, at 674, was higher than the average for 12 months ended March 1986, at 620, by 8.7 per cent.

Inflation rate as measured by the Consumer Price Index numbers (CPI) for urban non-manual employees was the highest in Meerut at 17.7 per cent during June 1987 over the corresponding month of 1986. The comparable increase last year was only 4.2 per cent. The index for this centre stood at 645 (1960 = 100) in June 1987.

Other centres which showed similar sharp rise in CPI during June 1987, include Madras 12.4 per cent (8.0 per cent last year), Trivandrum 12.0 per cent (5.6 per cent), Jammu 10.5 per cent (8.0 per cent), Delhi 9.9 per cent (5.6 per cent) and Gulbarga 9.8 per cent (4.2 per cent).

The centres which recorded lowest inflation rates during June 1987 over the year ago level are: Bhopal 2.2 per cent (8.5 per cent last year), Sambalpur 2.9 per cent (10.4 per cent), Jodhpur 3.0 per cent (6.3 per cent) and Nagpur 4.3 per cent (4.3 per cent) (Table).

In terms of the CPI for urban non-manual employees, the real worth of the rupee was only 13.40 paise in Trivandrum in June 1987; it was 13.79 paise in Madras, 13.87 paise in Jaipur and 13.95 paise in Gulbarga.

The value of the rupee was highest at 18.05 paise in Calcutta, 17.67 paise in Ajmer, 17.61 paise in Shimla, 17.30 paise in Visakhapatnam and 17.04 paise in Amritsar.

The All India CPI for urban non-manual employees stood at 645 in June showing 7.7 per cent increase over the corresponding month of 1986.

Inflation rate in various centres (as measured by CPI for urban non-manual employees 1960 = 100)

Centres	June 1987 over June 1986		
1. Meerut	17.7	All India	7.7
2. Madras	12.4		
3. Trivandrum	12.0		
4. Jammu	10.5		
5. Delhi	9.9		
6. Gulbarga	9.8		
7. Bangalore	9.4		
8. Agra	9.4		
9. Bombay	9.3		
10. Kozhikode	9.3		
		11. Bhopal	2.2
		12. Sambalpur	2.9
		13. Jodhpur	3.0
		14. Visakhapatnam	4.2
		15. Nagpur	4.3
		16. Cuttack	4.7
		17. Ajmer	4.8
		18. Mangalore	5.0
		19. Hubli Dharwar	5.2
		20. Rajkot	5.7

companies and institutions to become members of the stock exchange is expected to help the stock exchanges in rendering improved services to the investing community in the coming years, this might lead to a process of consolidation of membership on the stock exchanges. While the large firms engaged in this business will be able to render the services to a large body of investors, small brokers operating at present can expect to assist the big firms in putting through transactions on the stock exchange

The regulatory mechanism of the stock exchange governing boards needs to be tightened further As the number of investors grows and more companies get their securities listed on the stock exchanges, the volume of business on the stock exchanges is bound to grow. To handle such a large volume, streamlining of the procedures and systems will be needed.

The all-India Economic Times index for ordinary share prices showed a marginal rise of 6.5 per cent over the year against the net rise of 14 per cent and 58 per cent, respectively, in the previous two years

The Union budget for 1987-88 proved to be disappointing for the market Budget proposals, like inserting a new section 194 E and imposition of a tax on at least 30 per cent of the book profit of companies had a dampening impact on the market sentiment. No doubt, the proposal to introduce the new section 194 E was withdrawn later and the rigours of the minimum tax on corporate profits were softened. But these did not have any perceptible impact on the market sentiment.

Markets were hoping for a good monsoon, but these hopes were also belied Extensive drought conditions in some parts and floods in some other parts necessitated diverting government funds It was, therefore, feared that additional taxation for meeting a part of the expenditure to finance drought and flood reliefs measures might be needed

Sharebrokers in Bombay abstained from trading for a few days in September, as a protest against the continuing restrictions on trading in specified shares.

It is generally expected that normalcy will be restored soon and that the market can hope for better days if the government proves successful on taking measures for reviving the

The Death of An Economist

Gunnar Myrdal, who died in May 198 was an economist with unbridled sym pathy for the fledgling Third World coun tries.

Like all great economists, Myrdal wa much more than just an economist. H won the Nobel prize for economics when the profession as a whole was swinging towards a conservative approach that wa anathema to him personally. There i something of an irony in the fact that hi co-recipient in that year was F. Von Hayek arch-priest of monetarism that was then sweeping western academia and to a lesse extent, governments as well.

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His books, the three volume Asian Drama *and* A Challenge To World Poverty *were as much sociological as economic treatises and in fact he combined the professional talents of both as well as a compassion for the have-nots that was in the very best traditions of western humanism. Not many might remember that it was he who in the nineteen forties wrote* The American Dilemma, *which for a long time afterwards remained the definitive work on America's racial problem.*

economy. Ultimately, the strength of the capital market rests on the performance of the corporate sector. Investors' confidence can be expected to revive when the corporate sector starts turning out improved results.

For the second year in succession, the *balance of payments* remained under pressure in 1986-87. Export growth during the year was strong in volume terms. The drop in international oil prices provided a saving of over Rs. 2,100 crores in oil import bill during the year. The rapid rise in non-oil imports, however, continued.

India will, however, have to be watchful about certain disquieting features in the international scene. These include subdued growth rate in the industrial countries and not-too-bright prospects for improvement in world trade. The rise in international oil prices is likely to add to India's oil import bill. The prospects for concessional assistance are unsatisfactory. In this context, India might have to resort to larger commercial borrowings. There is not much room for drawing down of foreign exchange reserves for financing the current account deficits. Thus a vigorous export drive and careful planning of imports will be needed.

(Excerpts from an evaluation by D. G. Gupte in Times of India)

INDIA: BASIC FACTS

Capital	: New Delhi
Area	: 3 287 263 sq km
Population (1981)	: 685 184 692
Population (1986)	: 762 000 000
Density of population (1981)	: 216/sq km
Literacy	: 36.2%
„ Male	: 46.9%
„ Female	: 24.8%
Female-Male ratio	: 934 female for 1000 male
Rural population	: 76.7%
Urban population	: 23.8%
Birth rate (for thousand)	: 33.8
Death rate (for thousand)	: 12.5
Child mortality for a thousand births	: 114
Average life Expectancy (1981)	: 54 yrs
National income (1984-85)	: Rs.57014 crore (1970-71 price level)
Annual per capita Income (Average) 1984-85	: Rs.2344
States	: 25 Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Pubjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.
Union Territories	: 7 (Andaman & Nicobar Islands, Chandigarh, Dadra Nagerhaveli, Delhi, Daman and Diu, Lakshadweep and Pondicherry)

THE COUNTRY

India occupies a strategic position in Asia, looking across the seas to Arabia and Africa on the West and to Burma, Malaysia and the Indonesian Archipelago on the East. Geographically, the Himalayan ranges kept India apart from the rest of Asia.

The fertility of the Indo-Gangetic belt, however, had proved to be such an irresistible magnet that hordes of people had pressed into India through the mountain passes from ancient times.

India lies to the north of the equator between 8° 4′ and 37° 6′ north latitude and 68° 7′ and 97° 25′ east longitude. It is bounded on the south west by the Arabian Sea and on the south east by the Bay of Bengal. On the north, north east and north west lie the Himalayan ranges. The southern tip, Kanyakumari is washed by the Indian Ocean.

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India's New First Citizen

India's new President Mr. Ramaswamy Venkataraman's political career spans nearly half a century.

A postgraduate in economics and a bachelor of law, Mr Venkataraman evinced keen interest in the law pertaining to labour early in his career He started practice at the Madras High Court in 1935 and later moved to the Supreme Court

He came to be intimately associated with trade union activity, founding or leading several unions, including those for plantation workers, estate staff, dock workers, railway workers, and working journalists This led to his increasing association with politics

Mr Venkataraman, who will be 77 this December, has held portfolios of the ministries of labour, industries, corporation, power, transport and commercial taxes in the erstwhile State of Madras

While practising law, he was drawn into India's freedom movement In 1946, when the tranfer of power from Britain to India was imminent, the Government of India included him on the panel of lawyers sent to Malaya and Singapore to defend Indian nationals charged with offences of collaboration during the Japanese occupation of those two places

He was elected to free India's provisional Parliament (1950-52) and to the first Parliament (1952-1957) He was also secretary to the Congress Parliamentary Party in 1953-54

In 1957, Mr Venkataraman was re-elected to the Lok Sabha but he resigned to join the State Government of Madras as Minister During his decade-long stint in Madras politics, from 1957 to 1967, Mr Venkataraman was also the leader of the Madras Legislative Council

In 1977, Mr Venkataraman was elected to the Lok Sabha from Madras (South) constituency and served as an opposition member of Parliament and chairman of Public Accounts Committee

He was re-elected to the Lok Sabha from Madras (South) constituency in 1980 and was appointed Union Minister of Finance in the Indira Gandhi Government. In 1982, he took charge of Defence till August 1984 when he was elected Vice-President of India

Mr Venkataraman was the Indian delegate to the United Nations General Assembly in 1953, 1955, 1958, 1959, 1960 and 1961 He was leader of the Indian delegation to the 42nd session of the International Labour Conference at Geneva in 1958.

Born in the village of Rajamadam, Thanjavur district of Tamil Nadu, Mr. Venkataraman was educated locally and then in the city of Madras. He is a keen photographer and tennis player.

frontier of 15200 km and a coastline of 7516.5 km Andaman and Nicobar islands in the Bay of Bengal and Lakshadweep (islands) in the Arabian Sea are parts of the territory of India.

India shares its political borders with Pakistan on the west and Bangladesh and Burma on the east. The northern boundary is made up of the Sinkiang province of China, Tibet, Nepal and Bhutan.

India has seven major physiographic regions: (1) Northern Mountains including the Himalayas and the mountain ranges in the north-east. (2) The Indo-Gangetic plain, (3) Central Highlands, (4) Peninsular plateau, (5) East Coast, (6) West Coast, (7) Bordering seas and islands.

All the major land forms, hills, mountains, plateaus and plains, are well represented in India. Much of the land surface of India has developed a plateau character. There are extensive plains either flat or rolling at levels ranging from 300 to 900 metres, dotted with conical or rounded hills or traversed by flat-topped ridges. These are mostly in the central highlands and the peninsular plateau of the Deccan.

The alluvial plains, however, have been the most important land area in India, historically. In the Indo-Gangetic belt, level lands thick with lush vegetation stretch for miles and miles. These plains have lured successive streams of invaders into India—the Aryans, the Scythians, the Huns, the Pathans and the Mongols. They have fostered the growth of great empires like those of the Mauryas, the Guptas and the Mughals.

India has seven principal mountain ranges: (1) the Himalayas, (2) the Patkai and other ranges bordering India in the north and north east, (3) the Vindhyas, which separates the Indo-Gangetic plain from the Deccan Plateau, (4) the Satpura, (5) the Aravalli, (6) the Sahyadri, which covers the eastern fringe of the West Coast plains and (7) the Eastern Ghats, irregularly scattered on the East Coast of India and forming the boundary of the East Coast plains.

Himalayas, the highest mountain-system in the world, is also one of the world's youngest mountain ranges. It extends practically uninterruped for a distance of some 2500 km and covers an area of about 500,000 sq km It contains the world's highest mountain peak, *Everest* and some ten peaks rising above 7,500 m. It appears to have risen as a result of a collision between the drifting Indian (peninsular) plate and the Tibetan plate of South Asia about 50 million years ago. The Himalayas reached their present heights much later.

Patkai and allied mountain ranges run along the Indo-Bangladesh-Burma border and may collectively be called *Purvachal* or eastern mountains. These ranges forming an arc must have come into existence along with the Himalayas.

Aravalli range in north-western India is one of the oldest mountain systems in the world. The present Aravalli range is only a remnant of the gigantic system that existed in prehistoric times with several of its summits rising above the snow line and nourishing glaciers of stupendous magnitude which in turn fed many great rivers.

Vindhyan range traverses nearly the whole width of Peninsular India—a distance of about 1050 km with an average elevation of some 300 metres. The Vindhyan range appears to have been formed by the weathered products of the ancient Aravalli ranges.

Satpura range, another ancient mountain system, extends for a distance of 900 km with many of its peaks rising above 1000 metres. It is triangular in shape, with its apex at Ratnapuri and two sides running parallel to the Narmada and Tapti rivers.

Sahyadri, or Western Ghats, with an average height of 1200 metres, is about 1600 km long and runs along the western border of the Deccan Plateau, from the mouth of the river Tapti to Cape Comorin (Kanyakumari), the southernmost point of India. It overlooks the Arabian Sea, and catches the full force of the monsoon winds, thus precipitating heavy rains on the West Coast.

Eastern Ghats, bordering the East Coast of India, is cut up by the powerful rivers into discontinuous blocks of mountains. In its northern parts between the Godavari and Mahanadi rivers it rises to above 1000 metres

There are three main watersheds in India. (1) Himalayan range with its Karakoram branch in the north. (2) Vindhyan and Satpura ranges in Central India and (3) Sahyadri or Western Ghats on the West Coast All the major rivers of India originate in one or the other of these watersheds

The main rivers of the Himalayan group are

the Indus, the Ganga and *the Brahmaputra.* These rivers are both snow-fed and rain-fed and have therefore continuous flow throughout the year. Himalayan rivers discharge about 70 per cent of their inflow into the sea. This includes about 5 percent from central Indian rivers. They join the Ganga and drain into the Bay of Bengal.

The Indus, which the Aryans called the Sindhu, has lent its name to India. Its valleys on boths sides have been the seat of a civilization, that was not only older but also superior in many respects to the fabled civilizations of Sumeria and Egypt. This historic river has five major tributaries—the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej. These in turn have inspired the name Punjab (punj=five & ab=river), the Land of Five Rivers. The Indus rises from Mount Kailas in Tibet and traverses many miles through the Himalayas before it is joined by its tributaries in the Punjab. Thereafter it passes into Sind (Pakistan) to fall into the Arabian Sea.

The Ganga, famous alike in legend and history, is considered the most sacred river by the Hindus. It covers, what is called the heartland of India, which was the main centre of the ancient Aryan culture. It rises near the glacier, Gangotri in the Himalayas and flows through Uttar Pradesh, Bihar and Bengal to fall into the Bay of Bengal. Ganga and its tributaries Jamuna, Gomti, Garga, Sarda, Gandak, Chambal, Sone and Kosi, spread out like a fan in the plain of India thus forming the largest river basin in India, with an area, one quarter of the total area of India.

The Brahmaputra, rising in Western Tibet, flows for some 800 miles through the Himalayas, then turns south-west and then south, joining the easternmost branch of the Ganga—the Padma—and empties together with Ganga into the Bay of Bengal.

The rivers of Deccan denuding their beds for long geological ages have developed flat valleys with low gradients. The major Deccan rivers are the *Godavari,* the *Krishna,* the *Cauvery,* the *Pennar,* the *Mahanadi,* the *Damodar,* the *Sharavati,* the *Netravati,* the *Bharatapuzha,* the *Periyar,* the *Pamba,* the *Narmada* and the *Tapti.* These rivers are entirely rain-fed with the result that many of them shrink into rivulets during the hot season. The Deccan rivers contribute about 30 percent of the total outflow in India. Of this, the rivers that flow from west to east account for 20 per cent and those from east to west about 10 per cent.

The *Godavari,* the *Krishna,* the *Cauvery* and the *Pennar* all rise in the Western Ghats and traverse the plateau and the East Coast, to fall into the Bay of Bengal. The Godavari has the second largest river basin in India, comprising about 10 per cent of the total delta area of India. The Krishna basin is the second largest in the Peninsula, and the third largest in the whole of India.

The *Mahanadi* and the *Damodar* rise in the north west of the plateau and flow east into the Bay of Bengal. The Mahanadi forms the third biggest basin in the peninsula and fourth in all India.

The *Narmada* and the *Tapti* rising in the northernmost extremity of the plateau fall into the Gulf of Cambay in the Arabian Sea. The Narmada has a fairly extensive basin, next only to those of the *Krishna* and the *Mahanadi.* Rivers the *Sharavati,* the *Netravati,* the *Bharatapuzha,* the *Periyar* and the *Pamba* rise in the Western Ghats and cross the West Coast to fall into the Arabian Sea. These rivers are comparatively small with limited catchment areas and minor basins.

Biosphere Reserves

Thirteen biosphere reserves representing twelve bio-geographic regions and aimed at studying and preserving India's biological diversity are coming up in different parts of the country.

Four biosphere reserves are to come up at Uttarakhand (Uttar Pradesh), the Gulf of Mannar (Tamil Nadu), Namdapha (Arunachal Pradesh) and Nokrek (Meghalaya). The Uttar Pradesh Government is also demarcating area for a biosphere reserve in the Nanda Devi region.

Project documents on biosphere reserves in the Thar desert, Rann of Kutch and the Sunderbans are being finalised while the Nilgiri bio-sphere reserve came into being in September last year.

THE PEOPLE

The people of India are largely the descendants of immigrants from across the Himalayas. It is still debated whether any native race evolved on Indian soil.

We know that the species known as *Ramapithecus* was found in the Siwalik foothills of the north-western Himalayas. This species believed to be the first in the line of *hominids* (human family) lived some 14 million years ago. Recent researches have shown that a species resembling the *Australopithecus* lived in India some 2 million years ago. Even this discovery leaves an evolutionary gap of as much as 12 million years since Ramapithecus.

Very little research has been done regarding the ethnic origins of the Indian population. Perhaps it is of little import now. The fact is that the Indian population is polygenetic and is a confusing mixture of various racial strains. Few, if any, can claim to belong to any particular stock. Nevertheless, many Indians pride themselves on their Aryan descent.

The observations of Natwar Singh, minister-historian, are relevant in this context. Says Singh, "The unpalatable truth is, that for a vast number of people in north India, immaculate ancestry is a mirage. He is a brave man, who can with certitude prove his Aryan or Scythian descent. He, that has traced his birth to a mythological ancestor, has done so, to draw attention away from the intervening generations".*

We are giving below descriptions of the various races in India according to the classical pattern.

According to Dr. B.S. Guha, the population of India is derived from 6 main ethnic groups: 1. Negrito, 2. Proto-Australoids or Austrics, 3. Mongoloids, 4. Mediterranean or Dravidian, 5. Western Brachycephals and 6. Nordic Aryans.

Brachycephalic (broad headed) Negroids from Africa were the oldest people to have come to India. These people are now found only in patches among the hill tribes of south India *(Irulas, Kodars, Paniyans and Kurumbas)* on the mainland. But they survive in the Andaman Islands, where they have retained their language.† They are an inconsequential element in the population of India.

Proto-Australoids or Austrics were a race of people, with wavy hair plentifully distributed over their brown bodies, long heads with low foreheads and prominent eye-ridges, noses with low and broad roots, thick jaws, large palates and teeth and small chins.

The Austrics of India represent a race of medium height, dark (and in some cases black) complexion with long heads and rather flat noses but otherwise of regular features. Miscegenation with the earlier Negroids may be the reason for the dark or black pigmentation of the skin and flat noses. Austric tribes spread over the whole of India and then pass on to Burma, Malaya and the islands of South East Asia. "The Austrics form the bedrock of the people".††

The Austrics laid the foundation of Indian civilization. They cultivated rice and vegetables and made sugar from sugarcane. Their language has survived in the Kol or Munda speech, current in Eastern and Central India.

‡Dravidians comprise all the three subtypes, Paleo-Mediterranean, the true Mediterranean and Oriental Mediterranean. They appear to be people of the same stock as the peoples of Asia Minor and Crete and the pre-Hellenic Aegeans of Greece. They are reputed to have built up the city civilization of the Indus Valley, whose remains have been found at Mohenjodaro and Harappa and other Indus cities. The Dravidians must have spread to the whole of India, supplanting Austrics and Negritos alike.

Mongoloids of various types are confined to the north-eastern fringes of India, in Assam, Nagaland, Mizo, Garo and Jainti Hills. Generally, they are people of yellow complexion, oblique eyes, high cheekbones, sparse hair and medium height.

Nordic Aryans who migrated to India were a branch of Indo-Iranians, who had originally left their homes in Central Asia, some 5000 years ago, and had settled in Mesopotamia for

* K.Natwar Singh: *Maharaj Suraj Mahal* (1707-1763).
† See Andaman & Nicobar Islands: Infra.

†† Gazeteer of India.
‡ The term *Dravidian* is derived from the pre-Hellenic Lycians of Asia Minor who called themselves *Trmmili*, which the Greeks wrote as *Termilai*. *Termilai* became *Dramiza*. *Dramiza* evolved itself in two ways (1) In the South among the Dravidians, the process was *dramiza—damiz—Tamiz* (modern Tamil). (2) In the north, among the Aryans, *dramiza—dramila—dravda* (Dravidian).

some centuries. The Aryans must have come into India between 2000 and 1500 B.C. Their first home in India was western and northern Punjab, from where they spread to the Valley of the Ganga and beyond. The Aryans, coming into India, encountered the highly civilized Indus Valley people who had big towns, with fortifications and brick structures and many of the amenities of a quite high city civilization. The Indus people were essentially a city people while the Aryans were a pastoral race.

Though it is not exactly known what happened to the Indus people or their civilization, it may be assumed that they intermingled with the incoming Aryans, who adopted the Indus culture as their own.

THE POPULATION

India has a population of 685,184,692 according to the census taken in 1981 But, the latest reckoning says that India's population has now grown to 72.2 crore and UNFPA* projects a figure of 961,531,000 for 2000 A.D

Although India accounts for only 2·4% of the total world area (world = 13589 million sq km India 3.28 million sq km), it contains about 15% of the world population

The other top countries in point of population are: China 21.72%, U.S.S.R. 6.05% and U.S.A. 5.04%. India, with China, U.S.S.R and U.S.A. accounts for nearly 50% (48.34) of the world population.

The first census, that had an all-India character, was taken in 1872. It was, however, a patchwork of census data taken in various parts of the country. The first regular census in India was taken in 1881 Thereafter, there have been regular censuses every 10 years. The 1981 census is the 12th census of India and the 4th since independence.

The population of India, as at sunrise on 1st March, 1981, was as follows: Total No. 685,184,692, Males: 354,467,000, Females: 330,717,692. These figures include the projected population for Assam where census could not be held in 1981 owing to disturbed conditions there.

The table given indicates the ranking of the States by population size in 1981 and 1971.

Except for a slight fall in 1911-21, the population of India has been steadily growing for the last 80 years (1901-1981). From 1951 onwards, the growth rate has been very high In absolute terms, India's population has increased by 137 million in the decade 1971-81. This increase is 13 million more than the addition to the total population over the 50 years from 1901 to 1951.

* UNFPA: United Nations Fund for Population Activities.

All the States and Union Territories have had an increase in population but at different rates, and except for a few areas, the addition in numbers between 1971 and 1981 is higher than that between 1961-71. It is only in the states of Kerala, Orissa, Tamil Nadu, Goa and in the Union Territory of Goa, Daman & Diu that the absolute increase in the decade 1971-81 is lower than that in the former decade.

The decadal growth rates in the three states Kerala, Orissa and Tamil Nadu have been much lower than in the other States. The absolute increase in the decade 1971-81, as compared with that during 1961-71 is particularly noticeable in the case of Bihar, Rajasthan and Uttar Pradesh. This is important in demographic terms.

While there is doubtless an absolute increase in most cases, it will be noticed that in quite a few States the percentage decadal growth rate in the decade 1971-81 has been lower than that in the decade 1961-71. This is so in the case of Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Tamil Nadu, Tripura, West Bengal and in the Union Territories of Andaman and Nicobar Islands, Arunachal Pradesh, Chandigarh, Delhi, Goa, Daman & Diu and Lakshadweep.

The decadal growth rate in the decade 1971-81 has been higher than the corresponding rate of the previous decade 1961-71 only in the states of Andhra Pradesh, Bihar, Karnataka, Nagaland, Punjab, Rajasthan, Sikkim, Uttar Pradesh and in the Union Territories of Dadra & Nagar Haveli and Mizoram.

The average density of population as revealed by the final population figures of 1981 has been indicated in the table below: The highest densities in the country, with over

4 Pondicherry	1229	959
5 Kerala	655	549
6 West Bengal	615	499
7 Bihar	402	324
8 Uttar Pradesh	377	300
9 Tamil Nadu	372	317
10 Punjab	333	269
11 Haryana	292	227
12 Goa, Daman & Diu	285	225
13 Assam	254	186
14 Dadra & Nagar Haveli	211	151
15 Maharashtra	204	164
16 Tripura	196	148
17 Andhra Pradesh	195	158
18 Karnataka	194	153
19 Gujarat	174	136
20 Orissa	169	141
21 Madhya Pradesh	118	94
22 Rajasthan	100	75
23 Himachal Pradesh	77	62
24 Manipur	61	48
25 Meghalaya	60	45
26 Nagaland	47	31
27 Sikkim	45	30
28 Andaman & Nicobar Islands	23	14
29 Mizoram	23	16
30 Arunachal Pradesh	8	6

The Sex Ratio is defined as the number of females per 1000 males in the population

Sex Ratio 1901–1981

Year	Ratio
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	938

The sex ratio has been generally adverse to women, i.e., the number of women per thousand men has generally been less than 1000. Apart from the fact that the sex ratio is adverse to women, it will also be noticed that the sex ratio has deteriorated over the decades. However, there is an apparent improvement in the sex ratio between 1971 and 1981

It will be noticed that Kerala has the highest sex ratio of 1032 and is a solitary exception. In all the other States and Union Territories the sex ratio is adverse to women.

It is interesting to notice that certain States have had a fairly extended period where the sex ratio has been over one thousand, i.e., the sex ratio has been in favour of females. In the case of Kerala, the sex ratio has been throughout above 1000, while in Manipur, Orissa, Tamil Nadu, Goa, Daman & Diu, Lakshadweep and Mizoram it has been above 1000 for a considerable part of the period 1901 to 1981. On the other hand, the sex ratio has been constantly on the low side in comparison with other States and Union Territories in Haryana, Himachal Pradesh, Jammu and Kashmir, Pun-

Sex Ratio — States 1981

(In descending order)

Rank	State/Territory	Sex Ratio
	India	933
1	Kerala	1032
2	Pondicherry	985
3	Orissa	981
4	Goa, Daman & Diu	981
5	Tamil Nadu	977
6	Lakshadweep	975
7	Andhra Pradesh	975
8	Dadra & Nagar Haveli	974
9	Himachal Pradesh	973
10	Manipur	971
11	Karnataka	963
12	Meghalaya	954
13	Tripura	946
14	Bihar	946
15	Gujarat	942
16	Madhya Pradesh	941
17	Maharashtra	937
18	Mizoram	919
19	Rajasthan	919
20	West Bengal	911
21	Assam	901
22	Jammu & Kashmir	892
23	Uttar Pradesh	885
24	Punjab	879
25	Haryana	870
26	Nagaland	863
27	Arunachal Pradesh	862
28	Sikkim	835
29	Delhi	808
30	Chandigarh	769
31	Andaman and Nicobar Islands	760

National Insignia

The State Emblem of India is an adaptation from the Sarnath Lion Capital of Asoka as preserved in the Sarnath Museum. the Government adopted the emblem on 26 January, 1950, the day when India became a Republic.

In the original of Sarnath Capital, there are four lions, standing back to back, mounted on an abacus with a frieze carrying sculpture in high relief of an elephant, a galloping horse, a bull and a lion separated by intervening wheels (chakras) *over a bell-shaped lotus. Carved out of a single block of polished sandstone, the Capital is crowned by the Wheel of the Law (Dharma Chakra).*

In the State Emblem adopted by the Government only three lions are visible, the fourth being hidden from view. The wheel appears in relief in the centre of the abacus with a bull on the right and a horse on the left and the outlines of the other wheels on the extreme right and left. The bell-shaped lotus has been omitted. The words, Satyameva Jayate from the Mundaka Upanishad meaning 'Truth alone triumphs', are inscribed below the abacus in Devanagari script.

The National Flag is a horizonntal tri-colour of deep saffron (Kesari) at the top, white in the middle and dark green at the bottom in equal proportion. The ratio of the width of the flag to its length is two to three. In the centre of the white band is a wheel, in navy blue, which represents the Charkha.§ Its design is that of the wheel (Chakra) which appears on the abacus of the Sarnath Lion Capital of Asoka. Its diameter approximates the width of the white band. It has 24 spokes.

The design of the National Flag was adopted by the Constituent Assembly of India on 22 July, 1947. Its use and display are regulated by a code.

Rabindranath Tagore's song Jana-gana-mana was adopted by the Constituent Assembly as the National Anthem of India on 24 Jan. 1950. The first stanza (out of 5 stanzas) of the song forms the National Anthem. It reads:

Jana-gana-mana-adhinayaka jaya he
Bharata-bhagya-vidhata
Punjaba-Sindhu-Guarata-Maratha-
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchhala-Jaladhi-taranga
Tava Subha name jage,
Tava subha asisa mage,
Gahe tava jaya-gatha,
Jana-gana-mangala-dayaka, jaya he
Bharata-bhagya-vidhata
Jaya he, jaya he, jaya he,
Jaya jaya jaya, jaya he.

The following is Tagore's English rendering of the stanza:

Thou art the ruler of the minds of all people,
Dispenser of India's destiny.
Thy name rouses the hearts of the Punjab, Sind,
Gujarat and Maratha,
Of the Dravid and Orissa and Bengal.
It echoes in the hills of the Vindhyas and
Himalayas, mingles in the music of the Jamuna
and Ganges and is chanted by the waves of the
Indian Sea.
They pray for thy blessings and sing thy priase.
The saving of all people waits in thy hand,
Thou dispenser of India's distiny,
Victory, victory, victory to thee.

At the time of independence, the Govt. of India followed the Gregorian calendar based on the Christian era.

The National Government adopted the recommendation of the Calendar Reform Committee that the Saka era be adopted as the basis of the National Calendar. The Saka year has the normal 365 days and begins with Chaitra as its first month. The days of the Saka calendar have a permanent correspondence with the dates of the Gregorian Calendar, Chaitra 1 falling on March 22 in a normal year and on March 21 in a Leep Year. The National Calendar commenced on Chaitra 1 Saka, 1879 corresponding to March 22, 1957 A.D

The months of the National Calendar, with their days and the dates of the Gregorian Calendar corresponding to the first day of the Saka month are given below.

Saka & Gregorian Calenders‡

1 Chaitra 30/31 days‡‡	March 22/21‡‡
1 Vaishaka 31	April 21
1 Jyaistha 31	May 22
1 Asadha 31	June 22
1 Sravana 31	July 23
1 Bhadra 31	Aug 23
1 Asvina 30	Sept 23
1 Kartika 30	Oct 23
1 Agrahayana 30	Nov 22
1 Pausa 30	Dec 22
1 Magha 30	Jan 21
1 Phalguna 30	Feb 20

‡ As in 1982
‡‡ Leep Year

India's National Animal is Tiger and National Bird is Peacock

§ Khadi Spinning Wheel

jab, Tripura, Andaman and Nicobar Islands, Chandigarh and Delhi. At this stage one would be reluctant to offer specific reasons for this phenomenon and this is an area, as mentioned earlier, of uncertainty which would merit more detailed consideration on the basis of further information.

One of the important characteristics on which information is obtained in the census is literacy. For the purpose of the census, a person is deemed literate if he or she can read and write with understanding in any language A person who can merely read but cannot write is not defined as literate. Children below five years of age are treated as illiterate

Literacy rates would be more meaningful if one were to exclude the population in the age group 0-4 from total population. However, at this stage, this information is not available since it would only be generated through further tabulations Therefore, for practical purposes the entire population is being taken into account including the population in the age group 0-4

The table below presents the figures for the country at each census year In working out the rates for 1981, the population of Assam and Jammu and Kashmir have been excluded as the census has not yet been taken there The rates upto 1941 are for undivided India

Literacy 1901-1981

Year	Percentage	Males	Females
1901	5 35	9.83	0.60
1911	5 92	10 56	1 05
1921	7 16	12.21	1.81
1931	9 50	15 59	2 93
1941	16 10	24 90	7 30
1951	16.67	24 95	7.93
1961	24.02	34.44	12 95
1971	29.45	39 45	18.69
1981	36.17	46 74	24 88

One of the paradoxes in the Indian literacy situation is that while the percentage of literacy has been increasing every decade, the total number of illiterates has also been increasing. As between 1971 and 1981 the percentage has increased by nearly 7%. While this increase is reflected in the increase of literates by about 82 million the illiterates have also increased by 48 million as the following figures show.

States/Territories

Literacy ranking in 1981 and 1971*

Ranking in 1981	State/Union Territory	Literacy rate 1981	Literacy rate 1971	Ranking in 1971	Percentage increase of literacy
1	Kerala	70.42	60.42	2	16.55
2	Chandigarh	64.68	61.56	1	5.07
3	Delhi	61.06	55.61	3	9.80
4	Mizoram	59.50	53.79	4	10.90
5	Goa, Daman & Diu	55.86	44.75	6	24.83
6	Lakshadweep	54.72	43.66	7	25.33
7	Pondicherry	54.23	46.02	5	17.84
8	Andaman & Nicobar Islands	51.27	43.59	8	17.62
9	Maharashtra	47.37	39.18	10	20.90
10	Tamil Nadu	45.78	39.46	9	16.02
11	Gujarat	43.75	35.79	11	22.24
12	Manipur	41.99	32.91	14	27.59
13	Nagaland	41.99	27.40	9	53.25
14	Himachal Pradesh	41.94	31.96	15	31.23
15	Tripura	41.58	30.98	17	34.22
16	West Bengal	40.88	33.20	13	23.13
17	Punjab	40.74	33.67	12	21.00
18	Karnataka	38.41	31.52	16	21.86
19	Haryana	35.84	26.89	20	33.28
20	Orissa	34.12	26.18	21	30.33
21	Sikkim	33.83	17.74	27	90.70
22	Meghalaya	33.22	29.49	18	12.65
23	Andhra Pradesh	29.94	24.57	22	21.86
24	Madhya Pradesh	27.82	22.14	23	25.65
25	Uttar Pradesh	27.38	21.70	24	26.18
26	Dadra & Nagar Haveli	26.60	14.97	28	77.69
27	Bihar	26.01	19.94	25	30.44
28	Rajasthan	24.05	19.07	26	26.11
29	Arunachal Pradesh	20.09	11.29	29	77.95

Excludes Assam and Jammu and Kashmir.

	Literates	Illiterates
1971	156,440,275	372,145,203
1981	237,991,932	419,933,693

Female literacy is of special importance in the Indian context because of the great disparity in male and female literacy rates. In

By 2000, 62% Will Live In Slums

The urban population of developing countries will reach a figure of 1.6 billion by 2000 A.D., and unless there is a major change, 62 per cent or almost one billion will be living in squatter colonies.

According to the national building organisation (NBO) there is a shortage of nearly 25 million housing units in India. If the trend continues, the shortage will increase to 33 million in 1995 and 39 million in 2000 A.D.

By the turn of century, the shortage in rural areas will be 29.8 million and in urban areas 9.3 million.

There are other estimates also — and all of them higher than those of the NBO. According to the maximum estimate given by Operations Reserach Group, Baroda, the housing shortage stood at 41.6 million in 1981.

Similar estimates of the Indian Institute of Management, Ahmedabad, Birla Institute of Scientific Research, New Delhi and the Federation of Indian Chamber of Commerce and Industry for the same year are 75.3 million, 126.4 million and 90.1 million, respectively.

The number of household in the country is expected to rise from 135 million in 1985 to 151 million in 1990, 167 million in 1995 and 187 million in 2001.

On the other hand, the useable housing stock is estimated to rise from 110 million in 1985 to 122 million in 1990, 134 million in 1995 and 148 million in 2001. The shortfall is obvious and the worst sufferers of the situation will be the poor.

Slum dwellers form 32 per cent of Delhi's population, 38 per cent of Bombay's *and 42 per cent of* Calcutta's *population.*

The Delhi Development Authority's (DDA) commissioner for the slums wing, Mr. Manjee Singh, admits that there are more than 600 jhuggi colonies where almost 12 lakh jhuggi dwellers live in sub-human conditions. According to Mr. Singh, the DDA has sought co-operation of all voluntary agencies to help improve the living conditions of these slum dewellers.

According to DDA estimates, nearly 1,44,000 migrants come to Delhi every year.

Calcutta which had three million people living in slums in 1981, is expected to have 4.3 million slum dwellers by 1990.

In Bombay their number is expected to increase from 2.8 million in 1981 to 4.1 million in 1990, while in Delhi and Madras the increase is expected to be from 1.8 million to 3.2 million and from 1.3 million to 2.1 million, respectively.

The situation is expected to be no better in the eight other metropolitan cities of Bangalore, Hyderabad, Ahmedabad, Kanpur, Pune, Nagpur, Lucknow and Jaipur.

According to estimates, by 1990 Bangalore will have about one million slum dwellers, Hyderabad 1.12 million, Ahmedabad 1.13 million, Kanpur 0.8 million, Pune .55 million, Nagpur .56 million, Lucknow .40 million and Jaipur .49 million.

At present, the Housing and Urban Development Corporation (HUDCO) is the only financial institution exclusively financing housing and urban development projects.

Since its inception in 1970, HUDCO has till March 1986, sanctioned 4,277 schemes at a project cost of over Rs. 3,194 crores. The tentative loan sanction target of HUDCO for the seventh plan is Rs. 1,845 crores.

1901 there were 1466 male literates for every 100 female literates. By 1931 the disparity was brought down to 560 males as against 100 females. Since 1950 the difference has been steadily whittled down bringing the ratio to 201 males for 100 females in 1981.

States & Union Territories By ranges of female literacy

State/Union Territory	Per cent female literates	Percentage increase of fem literacy 1971-81
Female Literacy 50% and above		
Kerala	64 48	18 73
Chandigarh	59 30	9 11
Mizoram	52.57	12 55
Delhi	52 56	10 07
Female Literacy 25%—50%		
Goa, Daman & Diu	46 78	33 31
Pondicherry	44 30	27 96
Lakshadweep	44 21	44 67
Andaman and Nicobar Islands	41 85	34 52
Maharashtra	35 08	32.73
Punjab	34 14	31 81
Tamil Nadu	34 12	27 03
Nagaland	33 72	80 80
Gujarat	32 31	30.55
Tripura	31 60	49 13
Pradesh	31 39	55 17
	30 69	57 14
West Bengal	30.33	35.28
Meghalaya	29.28	19.22
Karnataka	27.83	32.71
Female Literacy less than 25%		
Haryana	22.23	49.29
Sikkim	22.07	147.98
Orissa	21.11	51.65
Andhra Pradesh	20.52	30.29
Dadra & Nagar Haveli	16.75	113.65
Madhya Pradesh	15.54	42.31
Uttar Pradesh	14.42	36.68
Bihar	13.58	55.73
Rajasthan	11.32	33.81
Arunachal Pradesh	11.02	197.04

Progress of Female Literacy 1901-1981

Year	Number of literates Males	Females	Literate males per 100 lit. females
1901	11870758	809580	1466
1911	13552737	1298484	1043
1921	15690428	2221499	1208
1931	22274036	3977034	560
1941	NA	NA	NA
1951	46272335	13916683	332
1961	77906038	27565962	283
1971	112012994	49423270	227
1981	158837215*	79154717*	201

* Excludes Assam and Jammu and Kashmir. 'NA' stands for not available

ELIGIOUS COMMUNITIES

The major religious communities of India are the Hindus, Muslims, Christians, Sikhs, Buddhists, Jains and Parsis. Of these the last two are numerically insignificant but they are important in other ways.

Of the 665,287,849 people in India in 1981 (Assam not included), the Hindus account for the largest community with 549,779,481 members. Other communities are divided as follows:

Muslims: 75,512,439, Christians: 16,165,447, Sikhs: 13,078,146, Buddhists: 4,719,796, Jains: 3,206,038, Other Religions: 2,766,285, Religions not stated: 60,217.

The Scheduled Castes and Scheduled Tribes who are part of the Hindu community form over 23 51% of the total population, about 156 million

The data of the 1981 census offers some other statistics also of interest to religious sociologists. The Appendix of the Household Population gives 183 subdivisions that are grouped together in the general statistics as "other religions and persuasions."

Of these, 71,630 are Zoroastrians, and 5,618 Jews

There are 25,416 "Adivasis" by religion and there are 1,367 "tribals" (in Nagaland), 119 "animists", and 25,985 whose religion is simply "Non-Christian" (in Manipur, Meghalaya and

Nagaland), together with 796 "pagans" in the same three States, and 1,215 "Meathan" in Manipur.

Some other tribals have given their specific tribal identity as their religions: as for example, the census has the record of 484 Oraons, 32,252 Santals, 1,481 Garos, 6,975 Gonds, 4,133 Hos, 148,437 Khasis, 1,160 Mundas, 1,296 Nagas.

Nirankaris, numbering 3382, of apparently Hindu following, have entered themselves under geographical or caste terms like Agarwal, Bengali, Gujarati, Maharashtrian, Marathi, Marwari, Malayalee, Tamilian and Teluguite.

Perhaps of more interest is that a total of 29,086 persons corresponding to 5,117 households consider themselves as "atheists" (predominantly in rural areas of Tamil Nadu, Maharashtra, Madhya Pradesh, Manipur and Bihar). There are 816 humanists ("manab dharma"), half of them in Maharashtra.

Census of 1981 gives some other interesting data too.

"The total fertility rate in India (excluding Assam) is 3.9 in rural areas, 2.8 in urban areas, and 3.6 for total areas.

"It may be noted that fertility is higher among Muslims, followed by Buddhists, Hindus, Sikhs, Jains and Christians.

"At the national level, the total fertility rate for both Jains and Christians is identical, being 2.6. However, both in rural and urban areas the fertility of Jains is higher than that of Christians.

Religious Members

Religions	Membership	Percentage
Hindus	549,779,481	82.64
Muslims	75,512,439	11.35
Christians	16,165,447	2.43
Sikhs	13,078,146	1.96
Buddhists	4,719,796	0.71
Jains	3,206,038	0.48
Other Religions	2,766,285	0.42
Religion not stated	60,217	0.01

"This apparent contradiction in the total fertility rate for all areas is due to the rural-urban distribution differentials in these groups."

The total fertility rate for Sikhs is 3.4, for Hindus and Budhists 3.6 and for Muslims 4.1.

The Christian female ratio compared to the males is by far the highest among the various communities. They have for every 1,000 males, 992 females; while Buddhists have 953, Jains 941, Muslims 937, Hindus 933 and Sikhs 880.

But on the other hand, according to census report, Christian women tend to marry rather late and therefore the percentage of married women in the fertile age group (between 15 and 49) is only 62.15, while for the Sikhs it is 70.40, for Jains 72.09, for Buddhists 79.26, for Muslims 80.42 and for Hindus 82.35.

PRINCIPAL LANGUAGES

India has 15 officially recognised languages. This is an evolution in a land of myriad dialects. The 1961 and 1971 censuses had listed 1652 languages as mother tongues spoken in India. This evolved through the ages by the various races that came into the land from ancient times

The Indian languages of today have evolved from different language families corresponding more or less to the different ethnic elements that have come into India from the dawn of history. They may be grouped into 6 groups as under: 1. Negroid, 2. Austric, 3. Sino-Tibetan, 4. Dravidian, 5. Indo-Aryan and 6. Other Speeches.

These languages have interacted on one another through the centuries and have produced the major linguistic divisions of modern India. Among the major groups, the *Aryan* and the *Dravidian* are the dominating families. They have influenced each other and have, in turn, been influenced by the Austric and Sino-Tibetan tongues. It is easy to spot Sino-Tibetan and Austric borrowings in the Aryan and Dravidian languages and mutual borrowings of the Aryan and Dravidian groups.

Indo-Aryan, the Indic branch of the Indo-European family, came into India with the Aryans. It is the biggest of the language groups in India, accounting for about 74 per

the entire Indian population.

The important languages in this group are: Western Punjabi, Sindhi, Eastern Punjabi, Hindi, Bihari, Rajasthani, Gujarati, Marathi, Assamese, Bengali, Oriya, Pahari, Kashmiri and Sanskrit.

Hindi or Hindustani has produced two great literatures, *Urdu* and (High) *Hindi*. Both have the same grammar and the same basic vocabulary. They differ, however, in script and higher vocabulary. *Urdu* uses the Perso-Arabic script. *Hindi* uses the Nagari script and has a preference for purely Indian words, in contradistinction to the numerous Arabic and Persian words borrowed by Urdu.

Sanskrit, the classical language of India, represents the highest achievement of the Indo-Aryan languages. Although hardly spoken now-a-days, Sanskrit has been listed a nationally accepted language in the VIII Schedule to the Constitution.

Dravidian languages form a group by themselves, and unlike the Aryan, Austric or Sino-Tibetan speeches, have no relations outside the Indian subcontinent, that is, India, Pakistan and Bangladesh. The Dravidian family is the second largest group in India, covering about 25% of the total Indian population.

The Dravidian language came into India centuries before the Indo-Aryan. It split into three branches in the Indian subcontinent—(i) The northern branch comprises *Brahui* spoken in Baluchistan and *Kurukh* and *Malto* [illegible] in Bengal and Orissa. (ii) The central [illegible] is composed of *Telugu* and a number of dialects spoken in Central India— *Kui, Khond, Holani, Konda, Gondi, Naiki, Parji, Koya* and others (iii) The southern branch is made up of *Tamil, Kannada, Malayalam, Tulu, Badaga, Toda, Kota* and *Kodagu*.

The outstanding languages of the Dravidian group are: (i) Telugu, the State language of Andhra Pradesh, numerically the biggest of the Dravidian languages. (ii) Tamil, the State language of Tamil Nadu, apparently the oldest and purest branch of the Dravidian family (iii) Kannada, the State language of Karnataka, another ancient Dravidian language that has developed individually. (iv) Malayalam, the State language of Kerala, the smallest and the youngest of the Dravidian family.

India never had a common language which was intelligible to the masses everywhere in India. For many years, Sanskrit remained a common medium. But it was the langua the learned classes and not of the m Under the British, English became a s lingua franca. Here again, it was restrict the educated few.

With independence, the question of a mon language naturally came up. The c tuent Assembly could not arrive at a cons in the matter. The question was put to vot

Of the 1652 mother tongues listed i census, 33 were spoken by people numb over a lakh. The following table show names of mother tongues and the numb speakers.

Mother Tongue	...	Spe
Hindi	...	153,72
Telugu	...	44,70
Bengali	...	44,52
Marathi	...	41,72
Tamil	...	37,59
Urdu	...	28,60
Gujarati	...	25,65
Malayalam	...	21,91
Kannada	...	21,57
Oriya	...	19,72
Bhojpuri	...	14,34
Punjabi	...	13,90
Assamese	...	8,95
Chhattisgarhi	...	6,69
Magahi/Magadhi	...	6,63
Maithili	...	6,12
Marwari	...	4,71
Santali	...	3,69
Kashmiri	...	2,42
Rajasthani	...	2,09
Gondi	...	1,54
Konkani	...	1,52
Dogri	...	1,29
Gorkhali/Nepali	...	1,28
Garhwali	...	1,22
Pahari	...	1,26
Bhili/Bhilodi	...	1,25
Kurukh/Oraon	...	1,24
Kumauni	...	1,23
Sindhi	...	1,20
Lamani/Lambadi	...	1,20
Tulu	...	1,15
Bagri	...	1,05

* The figures are provisional and indicative rathe absolute.

Source Language Handbook

Hindi won on a single vote— the casting vote of the President.‡ Hindi however, was only one of the many regional languages of India. The Indian National Congress had advocated the formation of linguistic provinces. The acceptance of this policy involved the statutory recognition of all the major regional languages.

The Constitution therefore recognised Hindi in Devanagari script as the official language of the Union (Art. 343 et seq.) and the regional languages as the official languages of the States concerned (Art. 345 et seq.). English was recognised as the authoritative legislative and judicial language (Art. 348 et seq.). A schedule—the 8th Schedule—was added to the Constitution to indicate all regional languages statutorily recognised. The Schedule now contains 15 languages as follows:

(1) Assamese (2) Bengali (3) Gujarati (4) Hindi (5) Kannada (6) Kashmiri (7) Malayalam (8) Marathi (9) Oriya (10) Punjabi (11) Sanskrit (12) Tamil (13) Telugu (14) Urdu (15) Sindhi.

Of the 15 languages listed in the schedule, all except three—Sanskrit, Kashmiri and Sindhi—are official languages of the various States.

Assamese, an Indo-Aryan language, is the official language of Assam State. More than 57 per cent of the population of Assam speak Assamese.

Assamese has developed as a literary language from the 13th century.

Bengali, one of the leading Indo-Aryan languages, is the official language of West Bengal. It is spoken by 86 million people, the majority of whom are now in Bangladesh, formerly East Pakistan. Bengali emerged as a separate language around A.D. 1000. It is now one of the most advanced languages of India.

Gujarati, a member of the Indo-Aryan family, is the official language of the State of Gujarat. Gujarati started out as an independent language around A.D. 1200. It has progressed at a rapid pace and is now one of the most developed Indian languages.

dialect chosen as official Hindi is the standard *Khariboli,* written in Devanagari script. This was originally spoken in Delhi and some western UP districts. From the literary point of view, the term Hindi covers not only the Khariboli form, but also a number of other dialects like Brajbhasha, Bundeli, Awadhi, early Marwari of Rajasthan and the Maithili and Bhojpuri of Bihar.

Being the official language of six States and the Indian Union today, Hindi is receiving high patronage. This patronage and support has encouraged the development of Hindi as a great literary language.

Kannada, the official language of the state of Karnataka, belongs to the Dravidian family. The majority of its speakers is found in Karnataka where they form more than 65 per cent of the population. Kannada, as an independent language, dates from the 9th century. It has rich literary traditions.

Kashmiri, a language of the Indo-Aryan group, is often mistaken as the state language of Jammu and Kashmir. Actually, Urdu is the State language of Jammu and Kashmir.

Kashmiri-speaking population in Jammu and Kashmir comes to about 55 per cent of the total population. Kashmiri literature goes back to A.D. 1200. It is comparatively a developed language. It is written, at present, in the Perso-Arabic script.

Malayalam, a branch of the Dravidian family, is the official language of the State of Kerala. Malayalam struck out on its own by the 10th century A.D. It is one of the most developed languages of India.

Marathi, belonging to the Indo-Aryan stock, is the official language of Maharashtra.

Though Marathi separated from the main Indo-Aryan stock at a very early date, its literary career began only in the 13th century. Since then, it has made wonderful progress. It has today a fully developed literature of the modern type.

Oriya, a branch of the Indo-Aryan family, is the official language of the State of Orissa, where Oriya-speaking population comprises

Punjabi, though a very ancient language, turned literary only in the 15th century. From the 19th century, Punjabi showed vigorous development in all branches of literature. It is written in the Gurumukhi* script.

Sanskrit, the classical language of India, is also one of the oldest languages of the world—perhaps the very oldest to be recorded. It starts with Rig Veda, which appears to have been composed around 2000 B.C. Early Sanskrit is known as Vedic Sanskrit and covers the period between 2000 and 500 B.C. Classical Sanskrit covers the period between 500 B.C. and A.D. 1000.

Sindhi is a branch of the Indo-Aryan family. It is spoken by some 7 million people, of whom 5½ million live in Sind (Pakistan), and the rest mostly in India.

Sindhi has preserved some of the archaic features of the old Indo-Aryan language. Sindhi uses the Perso-Arabic script in Pakistan. Speakers in India use the Devanagari script. Of late Sindhi has developed noteworthy literature also.

Tamil, the oldest of the Dravidian languages, is the State language of Tamil Nadu. Tamil literature goes back to centuries before the Christian era. "In originality, though not in extent, Tamil literature stands by itself". It represents certain new literary types which are not found in Sanskrit or other Aryan languages. The language is spoken by 30 million or more and judging by its modern publications, it is advancing at a fantastic pace.

Telugu, numerically the biggest of the languages, is the State language of a Pradesh. Next to Hindi, it is the biggest linguistic unit in India. Telugu is found recorded from the 7th century A.D. But it was only in the 11th century that it broke out into a literary language.

Urdu, the State language of Jammu and Kashmir, is spoken by more than 28 million people in India (1981 census).

The name Urdu is derived from 'Zaban-e-Urdu-Muala' which means the language of the exalted camp or court. The exalted camp or court here meant the camp or court of the ruling Sultans of Delhi.

Urdu and Hindi have proceeded from the same source, that is, from the Khariboli speech of Delhi and surrounding areas. The Khariboli was a spoken language which prevailed around Delhi, since the 13th century.

In the 19th century, when the Delhi Sultanate disappeared and the British became the rulers, Sir Sayyed Ahmed Khan (1817—1898) started a revival of Urdu, as the language of the Muslims in India. Modern Urdu was thus born.

Urdu has produced an extensive literature. Muslim speakers of Urdu use the Perso-Arabic script while Hindus use the Devanagari script. Urdu is also written in Roman characters.

Art. 343 of the Constitution provides that for a period of 15 years from the commencement of the Constitution the English language shall continue to be used for all official purposes of the Union. It was expected that after the expiry of the stipulated period (that is after 1965) Hindi would displace English as the official language of the Union.

Subsequent developments have turned the current in favour of continuing English as an additional official language, no definite date being fixed for its elimination and replacement by Hindi.

As matters stand, the languages listed in the Constitution remain the official languages in the respective States, while Hindi and English continue to be used for inter-State correspondence and for all-India use generally.

INDIAN LITERATURE

Indian Literature is one though written in many languages—this has been the slogan of the Sahitya Akademi ever since its inception. There are 15 officially recognised languages in India and each has produced a literature of great vitality and richness. Though distinctive in parts, all stand for a homogenous culture that is the essence of the great Indian Literature.

The Indian constitution has officially recognised 15 languages after taking into consideration their numerical, commercial, political and cultural importance. But the number of mother-tongues as per 1961 Census is 1652.

* 'Gurumukhi' literally means 'from the face of the guru'. It is the name given to the script devised by the Sikh guru, Guru Angad, in the 16th century. The Gurumukhi is based on the old Sharda script, which is related to the Nagari script.

This bewildering figure has been arrived at, taking into account even dialects spoken only by five persons. The 1971 census gives a more realistic figure of 700, having taken into account the dialects spoken by 1000 people and above.

These languages belong to four major speech families — the Aryan, the Dravidian, the Sino-Tibetan (or Mongolian) and the Austric. But the 15 major languages come under the Indo-Aryan (11) and the Dravidian (4). They are also literary languages. The Sahitya Akademi (the Natioanl Academy of Letters) has approved not only these 15 languages, but also English and six more Indian languages (Dogri, Konkani, Manipuri, Maithili, Nepali and Rajasthani) for its activities.

The addition of six languages was done after good deal of deliberation by expert committes appointed by the Akademi since 1960. Thus we can say that Indian literature is produced in at least 22 languages. In other words, there are 22 Indian Literatures recog-

We have 22 developed languages in India, which produce 22 literatures and these have a substantial common denomination justifying the expression 'the Indian Literature' with its intrinsic variety.

nised by the Sahitya Akademi.

Since its inception in 1954, the Sahitya Akademi has been propagating the idea of cultural unity by using the slogan "Indian Literature is one though written in many languages". This aphoristic statement is honestly questioned by thinkers who point out that literature is language-based and hence it is intrinsically linked with the language in which it is written.

The literature of a particular language has its own special form, symbols and nuances. Therefore it is more logical to say that there are as many literatures in India as there are languages which have flowered into literature. Its approach has its own relevance or force. But there is another side to the question. When we survey the various literatures of India, it is possible to recognise some common characteristics which reveal their Indian-ness, some threads which hold them together despite their distinctive flavour or diverse creation.

The like-minded response of our creative writers in the many languages to problems and similar experiences is remarkably clear. Therefore the use 'Indian literature' in the singular is as acceptable as with the plural. As a matter of fact, Orientalists and Indologists as also scholars and historians have used the the singular and also in the plural denced from the titles of books written them and no one has questioned the use. But it is significant that no one uses the 'The Indian Language' (in the singular there is no language which can make such claim.

English has been used by Indians for literary expression in the last 200 years. Thus we have 22 developed languages in India, which produce 22 literatures and these have a substantial common denominator justifying the expression 'the Indian literature'.

These 22 languages are not equal in their development and national or state support. No doubt all the regional languages have received a fillip after the attainment of independence. English, though foreign in origin, still plays an important role as the associate official language and the most effective link language both within India and outside India. Indians have made their own contribution to the English language in creative writing and in intellectual pursuits. That is why the Sahitya Akademi has approved it for its programmes.

Even the 15 scheduled languages which the Akademi had originally approved differ in their background, historical development and functional relevance. Sanskrit language and literature has a special place in our civilization. It is the oldest classical language and has functioned as the most powerful formative agency and integrating force from the very beginning of Indian history.

Spoken Sanskrit (by whatever name it has been called) is the fountain from which the languages of Aryan India had originally sprung; the principal portion of their vocabulary and their inflexional system being derived from this source. Even the Dravidian guages which have a considerably diffe

morphological system are indebted to Sanskrit in the realms of vocabulary and phonology with the partial exception of Tamil. Acually, there is no important language or literature in India which has not been influenced and enriched by Sanskrit and its great literature. Traditional Indian culture cannot be properly understood without the help of Sanskrit. This has been well recognised by orientalists but the complementary role played by ancient Tamil works representing the Dravidian stock has not been appreciated as much as it should have been.

Next to Sanskrit comes Tamil with reference to the antiquity of literature. Except Tamil in the South and Urdu in the North, almost all the modern Indian languages emerged more or less within the same period of Indian history Urdu has only a heritage of about five centuries.

As regards state patronage there is considerable variation. Hindi has a pre-eminent place in the national set-up as the official language of the Union of India and that of six states Kashmiri and Sindhi have no state to support them as official languages Sanskrit remains apart as a classical language, the other languages each has a state to support and foster (Assam), Bengali (West Bengal), Gujarati (Gujarat), Kannada (Karnataka), Malayalam (Kerala), Marathi (Maharashtra), Oriya (Orissa), Punjabi (Punjab), Tamil (Tamil Nadu), Telugu (Andhra Pradesh) and Urdu (Jammu & Kashmir). Brief reviews of the twenty-two literatures are given below.

Dev (1449-1568), during his long life, popul rised the movement by his great poet compositions, dramas and lyrics.

The poetical compositions from the 16th the 19th centuries may be classified into s categories: (i) translation from the epics ar puranas, (ii) Kavyas based on episodes, ar stories from the epics and puranas, (iii) lyri (iv) secular and utilitarian Kavyas, (v) bio raphical works and (vi) devotional anthologi and compendia. Traditional poetry was cor posed keeping an assembly of listeners in vie as literacy was confined to the privileg classes.

The great names that should be remer bered are Bhattadev (1558-1638) who popul rised Assamese prose, Damodara Dev, wh wrote important biographies, and Purush tam Thakur who wrote grammatical work The Buranjis constitute a glorious chapter Assamese literature. Actually mode Assamese prose emerges from Buranj though the European missionary also has important role in the shaping of mode

For a period of about 40 years, Bengali language dominated in Assam especially in administration and education. But that came to an end with the renaissance of Assamese.

ASSAMESE

Though the antiquity of the Assamese language can be traced back to the seventh century A.D. it sprouted literary forms only by the 13th century. Rudra Kandali's translation of 'Dronaparva (of the *Mahabharata*) and Madhava Kandali's rendering of the *Ramayana* are two works of classical eminence of the early period. The new Vaishnavite movement in the 15th century AD gave an impetus to the vernacular literature. Sankara

prose. In the 17th century a prose version the *Ramayana* was written. Literature al broke out into secular channels.

The last three quarters of the 18th centu and the first half of the 19th century were the whole a barren period. Then with t influences of the west, the modern peri commences. For a period of about 40 ye (1836-72) Bengali language dominated Assam especially in administration and edu tion; but that came to an end especially wh the Christian Missionaries started their work compiling dictionaries and writing gramm of Assamese and translating the Bible simple prose. The translation of the wh Bible into Assamese by the missionaries a its publication in 1813 was an important eve

The leaders of renaissance in Assame literature are Chandrakumar Agarwalla (18 1938), Lakshminath Bezbarua (1867-193 and Hemachandra Goswami (1872-1928). T monthly *Jonaki* which ushered in the roma tic movement was founded by them. T leading novelists of the 19th century we

ovel *Durgesh Nandini* in 1865. This gave a rill to the readers of Bengali and soon anslations appeared in sister languages. ankim wrote more novels like *Anandmatha, ajsimha, Visha Vriksha* etc. that he was hailed s a pioneer novelist in India. Sarat Chandra ollowed him with several novels of classical ignity and charm. His *Nishkriti* (Release), *indur Cele* (Bindu's Ward) and *Srikanta* are articularly well-known. In the third quarter of ie 19th century Bengali literature was brim- ning with activity in all the genres of litera- ire.

But it reached the summit of its glory rough the life-long service of Rabindranath agore. It was actually a spiritual endeavour or the bard. Thousands of lyrics, poems and ongs, about a dozen novels, three dozen lays, volumes of short stories and a mass of rose literature flowed from his pen. His own anslation of *Gitanjali* in English brought him ternational fame when he was awarded the lobel Prize in 1913. His *Gora* is considered ie only epic novel in our literature.

The post-Tagore period of Bengali literature also rich. Here we find novelists like arashankar Banerji, Manik Banerji and Bibhu- Bhushan Banerji in the field of fiction, Das, Nazrul Islam, Sudhindra Nath atta, Buddha Devra Bose, Premenda Mitra nd Bishnu De in poetry, Dinabandhu Mitra, . C. Ghose and Dwijendralal Roy in the field f Drama and a host of others who have an stablished reputation in Bengali. Quite a few f them are known beyond the borders of engal. It may also be stated that several ovements in literature sprouted in Bengali st and then spread over to other languages India.

GUJARATI

Gujarati language evolved from one of the alects of the standard Gurjara Apabhramsa d got a distinctive form by the 12th century. n influence is quite strong especially in the rly periods. The history of Gujarati literature ls into four broad periods: (1) 1250-1456 (2) 1456-1650, (3) 1650-1825; and (4) 1825-1975.

By about 1250 Gujarat became an independent political unit with considerable achievement in art and literature. Sanskrit was cultivated and libraries were set up in the monasteries. Saivism became strong. Heroic romance, historical chronicle and the romantic tale are the principal narrative forms of this early period. *Rasa*, originally a folk-dance was converted into melodious dramatic poetry by Jain authors. *Fagu*, a shorter and more lyrical poem also became popular. Jina Padma, Raja Sekhara and Jayasekhara (all of the 14th century) were important poets who popularised the *fagu*. Romantic tales in verse also were in vogue. The Jain scholars took to writing in prose which was elegant and simple. *Prithvichandra* (1422) by Manikya is a reputed work of poetical prose.

In the second period the language breaks away from the Rajasthani idiom. Hinduism takes the place of Jainism as the main source of literary inspiration. The epics and puranas flow into Gujarati. The great poets of the period are Narasimha and Mirabai; the latter is being claimed by languages like Hindi and Rajasthani. Narasimha Mehta (1414-1480), though not the first Gujarati poet, is considered to be the father of Gujarati poetry like Ezhuthachan in Malayalam. His *Govinda-Gamana* and *Sudama Charitra* are very well known.

Mirabai who wrote in Gujarati is the most celebrated poetess of India. Her bridal devotion to her Lord Krishna has a ring of purity and is a fine example of the sublimation of the sex element.

Mirabai (1499-1547) is the most celebrated woman poetess of India. Her bridal devotion to her Lord Krishna has a ring of purity and is a fine example of the sublimation of the sex element. After them comes Bhalana (1434-1514), the great scholar and artist who has adapted *Kadambari, Nalakhyana* and *Ramabalacharita*. Bana's prose work *Kadambari* has been rendered in a versified form.

Here Bhalana shows the art of pruning the luxuriance of the original and adding imageries of local significance. Nakara (1500-1575) and Vishnudasa (1564-1632) enriched the Akhyana literature. The *Ramayana*, the *Mahabharata* and the *Puranas* were brought into Gujarati in an assimilable form by them.

Akho (1591-1656) of Ahmedabad was the champion of Vedantic poetry in Gujarati.

Thus we pass on to the third period when Akbar formed the province of Gujarat separating it from Marvad. Life was dull from about 1700 until the British came to the scene. Premanand (1636-1734) is the finest poet of this period. He brought the *Akhyana* technique to perfection. The 16th century was rich in romantic tales which were composed by Jain and non-Jain poets alike. We thus come to the modern period where the impact of the west is clearly seen in the literary productions. Dalapatram (1820-1898) and Narmadasankar (1833-86) were the leaders of this new age. They were scholars and classical poets. Nandasankar's *Karana Ghelo* (1866) is the first novel in Gujarati. But the most celebrated novel *Saraswati Chandra* came from the pen of Govardhan Ram Tripathi (1855-1907). It is considered to be one of the great classics of modern India.

In the field of fiction we have the stalwart, K. M. Munshi. One should not forget the valuable contribution of Gandhiji who influenced Gujarati writers to write simple and direct prose as also Kaka Sahib Kalelkar who wrote in Gujarati, Hindi and Marathi with equal ease.

Coming to the contemporary period Gujarati flourished in all genres of literature, the most outstanding poets are Sundaram and Umasankar Joshi, novelists Pannalal Patel, (who won the Jnanpith Award of 1985) and Dhansukhlal Mehta. Among the playwrights, the names of C. C. Mehta, Umar Wadia and Shivkumar Joshi may be mentioned.

HINDI

The Hindi language comprises of a number of dialects of which those used for literary composition are Khariboli, Rajasthani, Maithili, Brajbhasha and Awadhi. Khariboli became the chief literary medium only by the 19th century. The early period of Hindi literature which is called *Adikala* is accepted as the period upto mid-14th century.

The main groups of trend-setters in this period were: (i) the Siddhas, (ii) the Jain Poets, (iii) the Nathapanthis and (iv) the heroic poets. The Siddhas belonged to the later Buddhistic cult called *Vajrayana*. The *Nathapanthis* adhered to a cult in which *Hatha yoga* was practised. The works of heroic poets are generally known as *Rasau* poems (derived from *rasa*, a style of verse-biography which was also sung).

The second period which consists of the mid-14th to mid-17th century is dominated by devotional poetry (*Bhakti Kavyas*). The Hindi *bhakti* poetry consists of two streams: (i) *Nirguna* — the poets who believed in a formless God or abstract name: (ii) *Saguna* — the poets who believed in singing and writing about a God with attributes (human incarnation like Rama in particular).

Kabir (1398-1518) is the most important poet in the Nirguna school. He preached the universal religion of man above and beyond Hindu or Muslim orthodoxy and composed a large number of songs and poems. Guru Nanak (1469-1538), the founder of Sikhism, is also accepted as an outstanding poet of this school.

Bharatendu Harischandra was the pioneer who ushered in the modern period of Hindi literature. He deliberately made Khariboli the medium for his prose and dramatic writings.

The *Saguna* stream is related to Vaishnava poets who belong to two categories, those worshipping Krishna and those worshipping Rama. Surdasa whose poems have been compiled under the title *Surasagara* was a great poet of Krishna poetry. Vidyapati claimed by Bengali and Maithili was a versatile composer of Hindi poems also.

The great champion of Rama poetry is Tulasidas (1543-1623) whose *Ramacharitamanasa* is considered an immortal classic by all lovers of Hindi poetry. He has command over all the important styles of composition — narrative, epic style, lyrical and dialectic. He has given a human character to Rama, portraying him as an ideal son, husband, brother, king and so on. Tulasidas considered Siva and Vishnu as two aspects of the same supreme being and this brought about unity among the Hindus.

The third period is spoken of as the *Ritikavyakal*. It is also referred to as the

Ritisrngara Kavya. Though literally the word *riti* means 'a way of writing poetry' in Hindi it refers to a special form in which the erotic element is preponderant. The *riti* can either be explicit or implicit. Hindi is very rich in both these categories of poetry. During the same period Hindi had also a good collection of Devotional poetry and Historic poetry. In the *Bhakti* period there were many epics and long narrative poems composed in the dialects of Hindi (Awadhi, Braj bhasha, etc.).

The modern period of Hindi literature commences with the second half of the 19th century. Bharatendu Harischandra (1850-84) was the pioneer who ushered in the modern era. He deliberately made Kharıboli the medium for his prose and dramatic writings. But, for poetic composition he used Brajbhasha.

Other important writers of this formative period are Maithili Saran Gupta (1886-1964), R. N. Tripathi (1889-1962) and Gopala Sarana Sinha (1891-1960) Maithili Saran revived the epic tradition Far-reaching events in the national and international spheres had their effect on Hindi literature. The romantic upsurge spoken of as Chaya vada is an important element of the period

Jayashankar Prasad, Surya Kant Tripathi, 'Nirala' and Sumitra Nandan Pant are the leading luminaries of the movement Kamayani by Jayashankar published in 1936 is hailed as a magnum opus. It is the psychobiological journey of a man through time and space.

In the second phase of the modern period, which is referred to as the *Dwivedi yug*, the leading figure obviously was Mahavir Prasad Dwivedi. Poetry, Drama, Novel, Short story and the Essay flourished on account of western impact. Drama in Hindi has a long history from the 14th century. But the prose drama developed only towards the close of the 19th century.

Bharatendu and Jayashankar Prasad have written quite a few plays. In the field of fiction, the great stalwart no doubt is Premchand. His novel *Godan* has been translated into many languages, Indian and foreign. Other important novelists of the contemporary period are Jainendra Kumar, Phaneswar Nath Renu (*Maila Anchal*) and Satchidananda Vatsyayan

KANNADA

Kannada has a long history of literature next only to Sanskrit and Tamil. Though Dravidian in its origin, Kannada has been considerably influenced by Sanskrit and even the earl literature bears witness to this phenomenon According to some scholars the languag flowered into literature as early as the 5t century AD Nirpatunga of the late 9th centur refers in his work *Kavirajamarga* to a numbe of predecessors who wrote prose and vers There were also important works on gramma and rhetoric. Though Sanskrit had a hold o the people as a religious and fashionabl language, Nripatunga voiced the glories of hi mother tongue.

Works based on or inspired by Sanskr epics such as the *Mahabharata* and th *Ramayana* formed the earliest literature i Kannada. The three gems of early Kannad poetry, Pampa, Ranna and Ponna (all born i the 10th century), rendered the epics i Kannada. The early writers were also promo ters of the Champu style and some of ther have written about Jaina Tirthamkaras.

Kasiraja's *Sabdamani darpana* (C 1260 AD is the first standard grammar of the Kannad language. Nagavarma II has written thre works on language, literature and gramma viz. *Kavyalokana, Bhasha bhushana* (in Sans krit) and *Vastukosha*, a Sanskrit-Kannada glos sary

A great change took place in Kannad literaure when Basaveswara (12th century introduced the *Vachana* style of writing whic caused a social revolution: *Vachanas,* o sayings, are simple in style, prose in construc tion, with a sort of ryhme, but pithy an proverb-like. The imagery belongs to the dail life of the ordinary man. This was imitated b other writers not only in Kannada, but i Telugu as well. Dignity of labour and equalit

Kannada has a long history of literature next only to Sanskrit and Tamil. Though Dravidian in its origin, Kannada has been considerably influenced and thereby enriched by Sanskrit.

Nayantara: Accolades Rush In

Nayantara Sahgal, 60, is in the forefront of Indo-Anglian writers: After writing for more than 30 years, producing two autobiographical books, five novels and one political treatise on Indira Gandhi, her sixth and seventh novels have won her accolades one after another—first the Sinclair Award, then the Sahitya Akademi Award and lastly in 1987 the Commonwealth Writers' Prize (Asian section).

Nayantara achieved a quiet success with her novels, although there were many who said she was a better political commentator than a writer of fiction. Then, right out of the blue, came the Sinclair Award, for the best unpublished full-length novel which in the opinion of the judges is not only of great literary merit, but also of major social and political significance. Her book Rich Like Us *lying unpublished with her agent in England, went on to win the £5,000 award, and later the Sahitya Akademi Award as well.*

Rich Like Us *was written in America on a Woodrow Wilson fellowship. Although she liked the book and thought it the best thing she had ever done, she could not find a publisher for it. Being a disciplined writer, she started another novel,* Plans For Departure, *which was immediately accepted for publication.*

She saw a cutting about the Sinclair Award, while still in the U.S. She contacted her agent in England who had the manuscript typed in the proper format and submitted it. It went on to win the prestigious award and was published quickly, at the same time as her other book Plans For Departure, *so that she was in the enviable position of having two new books out at the same time.*

Nayantara is a disciplined, dedicated and extremely talented writer.

The milieu of her books is always middle class, a fact that baffles most western critics who, according to the New York Review of Books, *"do not think of Indians as being in any way middle class" picturing them only as teeming, starving millions, rotting under the hot sun.*

Each of her books has subtlety, humour and irony, and appeals more to the head than the heart. Plans For Departure *is very much a novel of ideals, exploring the impact of British rule in India and creating characters who are both complex and believable. Set in an isolated hill station, her sensuous writing evokes the scenes and landscapes of India, and comments on the British who "stayed on" and the missionaries who are convinced that their form of salvation is right for everyone.*

The central character is Anna Hansen, an assertive Danish woman who becomes involved in the goings-on in Himapur. In a typically Indian statement, the shopkeeper Madhav says — "Past, present and future are not divided; seen from outside the mind they are one".

Another book has since been finished and is already with her agent. He feels it is the best thing she has ever done, so perhaps there are newer and greater awards in store for this writer, who at 60 is able to say, "I've only just begun to write".

of all members of the society were the cardinal points of the Basavesvara movement.

Other important poets of the era are Harihara, Raghavanka, Rudra Bhatta and Janna, Kumara Vyasa (15th century) comes a little later. His epic *Bharatakathamanjari* is very well known. Actually Pampa and Kumara Vyasa are the giant genius figures in Kannada literature. We may also mention in passing the names of three more great poets Lakshmisa (C. 1550), Sarvajna (C. 1600) and Sankaradeva (C. 1655). Jains, Virasaivas and Brahmanas have produced works on their respective religions and on various secular themes.

After a less fertile interregnum, we come to the period of Renaissance and the Independence era. Two trends are witnessed during this period almost simultaneously, the absorption of western ideas and a patriotic rediscovery of the past. Historians divide the modern period as follows: (i) 1850-1920 the period of cultural awakening; (ii) 1920-50 the period of great political struggle and also a reaction to it in the form of social realism (iii) 1950-70 the period (poet and historian) Kannada is flourishing in almost all branches of literature.

KASHMIRI

Kashmiri separated from the parental *Apabhramsa* stock around the 10th century AD. By oral tradition the language has transmitted a good deal of folk items. Sanskrit flourished along with the prakrit of the area. Some historians consider the *Brihatkatha* in Sanskrit as an adaptation made from the mother tongue of Kashmiris.

The beginnings of Kashmiri poetry is an extension of the Saiva texts in Sanskrit like *Tantrasara* (11th century) by Abhinava Gupta. The Saiva siddhas wanted to propagate their views and beliefs. During the 14th century two different religious traditions came face to face in Kashmir. By that time *Saiva darsana* had assimilated Buddhist as well as Vaishnavistic strands in it.

The tradition of Islamic faith from central Asian areas also came to Kashmir by that time.

Kashmiri has a fairly long tradition of poetic compositions but its prose is very recent. Kashmiri script is such that printing is very difficult and this has to some extent retarded the progress of prose.

disillusionment and of experimentation. 1970 onwards the transitional period of ical uncertainties.

e great writers of cultural awakening are M Srikantaiah (1884-1946) and M Govinda Pai (1883-1963). Srikantaiah's *Ingiu Gitagalu* marks a turning point in verse composition. The poets of stature who followed are K V Puttappa (b. 1904) whose *Ramayanadarsanam* has been acknowledged as a modern classic and D R Bendre (1896) a great lyricist both of them have won the Jnanpith Award.

Two novelists who won the same award are Masti Venkatesh Iyengar (1891-1986) and K Sivaram Karanth (b. 1902). Masti is considered the father of Kannada short story. Among the modern dramatists the tall figures are Adya Rangacharya and T P Kailasam. One notable feature as far as modern Kannada literature is concerned is that there are quite a few writers who have made a mark in more than one field A N Krishna Rao (Poet and novelist), V K Gokak (poet and novelist), Gopalakrishan Adiga (poet and essayist) and R S Mugali

this blended religio-cultural heritage. Persian continued as the official language for over 600 years. Consequently Kashmiri was cultivated only as the medium of low-brow expression. Later in point of time, Urdu poetry exerted its own influence on Kashmiri.

The following technical terms, for literary genres in Kashmiri will indicate the nature of influence on Kashmiri verse. 1. *Vak* (from Sanskrit) is a metrical utterance with a spiritual content. 2. *Vrak* from Sanskrit *sloka* is akin to *vak* applied to the Sufistic context. 3. *Paband* (from Sanskrit *Prabandha*) is a cantoed composition. 4. *Vatsun* (from Sanskrit *vacana*) is song with a refrain.

There are five varieties of *Vatsun*. *Masnavi* taken from the Persian tradition is a couplet form with rhyme. It is either a praise of God or a panegyric addressed to a royal patron. In addition we have *Lila*, *Pad*, *Dastan*, *Marsi* and Ghazal showing the many varieties of verse composition. This fertile period from 1200 to 1900 AD is usually divided into 5 phases.

Nunda Rishi, the great poet was a product of

In the beginning of the modern period the pioneering poet was Mahjur (1885-1952). His ghazals are well known. Zinda Kaul Mastergi (1886-1966) is another outstanding poet of modern Kashmir. The influence of the west is clear in later periods. This is particularly so when drama and prose literature are taken up for consideration. Kashmiri has a fairly *long* tradition of poetic compositions, but its prose is very recent.

Urdu is the official language of the state of Jammu & Kashmir and the educated people cultivated competence in that language. Kashmiri fiction originated with the progressive movement of the Forties. And important writers, like Akhtar Mohi-Ud Din (b. 1928), Mohammed Amin Kamil (b. 1924) and Ali Mohammad Lone (b. 1926) actually switched over from Urdu to Kashmiri. The script used by Kashmiri is such that printing is made difficult. This has to some extent retarded the progress of prose-writings and its popularisation.

The missionaries tried to popularise colloquial idiom in Malayalam. Poetry got a new dimension (lyrics, odes, etc.) and prose got new literary geners. Western influence reflects in creative writing.

MALAYALAM

The early period of Malayalam literature consists of a tripe stream. (i) The Pacha-Malayalam stream, by which we mean literary expression in pure Malayalam without any admixture, (ii) The Tamil stream and (iii) the Sanskrit stream. The first steam consists of ballads and folk-songs, which are difficult to date. Songs connected with religious rites such as *Bhadrakali pattu,* Thiyattupattu, Sastrakali Thottampattu and later in point of time, 'Margamkalippattu' are important varieties. Then we have festival songs like *Onappattu* and *Krishipattu* and ballads of North Malabar and South Malabar.

In the Tamil stream (pattu school) the most outstanding work is *Ramacharitam* (12th century AD) composed in a language which is a mixture of Tamil and Malayalam. The mixing happens in the area of grammar as well. The author is one Chiraman and only *Yuddhakanda* has been taken up by the poet. After this magnificent long poem, we have the works of Niranam poets, *Kannasa Ramayanam, Bhagavad Gita* and *Bharatamala.* As compared to *Ramacharitam* the Tamil influence in these works is much less. The Niranam poets (Kannassan group) were great scholars and literary luminaries.

Sanskrit language and literature had a predominant influence on the native language of Kerala. It has resulted in a peculiar variety of literary dialect called *Manipravalam* and hence this stream is also referred to by this name. *Lilatilakam* (14th century) is the earliest book dealing with certain aspects of Malayalam grammar devoting most of its space to the grammar and rhetoric of Manipravala compositions. Such compositions come under two main literary forms, *Sandesha Kavyas* and *Champus.*

Among the many *Sandesha* (message) poems, the most outstanding is *Unnunili Sandesam* (14th cent.) whose authorship is unknown. The most well known early Champus are *Unniyaticharitam* and *Unnichirutevi charitam.* The three streams were influencing each other and by about the 15th century, we have a great poem titled *Krishnagatha* composed in a blended dignified style, neither too high-brow nor too low-brow. Cherussery Nambudiri is the author of this long poem on Krishna. Throughout the whole range of Malayalam literature there is no personality who could come anywhere near Ezhuthachan (16th Century) in the grandeur of poetic quality. His *Adhyatma Ramayanam, Bharatam* and *Bhagavatam* are the greatest classics in the Malayalam language. *Kilippattu* is the name given to the form of verse he has made popular. The *Pattu* (song) of the *Kili* means parrot song and in this literary form Ezhuthachan has made use of a style which has set the standard for all time. His Ramayana and *Mahabharata* are great *Bhakti* poems in the language. Till about the 18th cent. *Kilippattu, Champu* and *Sandesha* kavya compositions had been produced by many a poet in Kerala.

Coming to the 18th cent. we have *Attakkatha* and *Thullal* compositions which have enriched Malayalam verse in a significant way.

Attakkatha is the literature form used for the well known *Kathakali* performance. *Ramanattam* by Kottarakkara Thampuran is the first full-fledged *Attakkatha*. The great masters of this literary form are Kottayathu Thampuran (*Baka vadham, Kalakeyavadham* etc.) Unnayi Variyer (*Nalacharitam — four days*) and Erayimman Thampi (*Uttaraswayamvaram, Dakshayagam* etc.)

Thullal is a more popular art-form and it has a considerable amount of good literature. This branch of literature is associated with the name of Kunchan Nambiyar who is its unrivalled master. He has about 45 *Thullal* pieces to his credit. The puranic themes he selects for his compositions are but pegs to hang his social criticism and his poetry brims with humour and satire. *Thullal* has great mass appeal.

Malayalam can claim to have a fairly long history of prose writings. *Arthasastr* has been adapted into Malayalam prose around the 13th cent. Then we have *Attaprakaram, Kramadeepika* and *Dulavakyam* assigned to the

Marathi has a flourishing contemporary literature in every branch of verse and prose. Some of its plays have earned a reputation beyond the borders of Maharashtra during the last quarter of the century.

eriod between 14th and 17th cent. *Varthamana pusthakam* by Parammakal Thoma Kathanar is a travelogue written about a journey to ome (1776-86) in simple Malayalam.

By mid-19th cent. we have missionaries like ailey and Gundert compiling dictionaries, riting grammars and arranging translation of ie Bible in Malayalam. The missionaries tried o popularise the colloquial idiom. Towards ie end of the century, western impact finds xpression in creative writing. While poetry ets a new dimension (lyrics, odes, etc.) new terary genres established in prose.

Poets and scholars like Kerala Varma and ajaraja Varma paved the way for an abiding naissance in literature. Chandu Menon's ocial novels (*Indulekha* and *Sarada*) and C. Raman Pillai's historical novels (*Marthanda arma, Ramaraja Bahadur* and *Dharmaraja*) e considered outstanding classics in the nguage. The contribution of the great-trio umaran Asan, Vallathol Narayana Menon and loor S. Parameswara Iyyer — have enriched alayalam literature with their writings in verse and prose.

Coming down to modern times we have poets like G. Sankara Kurup, who won the First Jnanapith Award and Changampuzha, Vailoppilli Sreedhara Menon, N. V. Krishna Warrier, O. N. V. Kurup, Vayalar, etc. fiction writers like Kesavadev, Thakazhi (who also has won the Jnanapith Award), Muhammed Basheer, Ponkunnam Varki, S. K. Pottekkad, P. C. Kuttikrishnan, Karoor, Kovoor and M. T. Vasudevan Nair; Playwrights like E. V. Krishna Pillai, N. Krishna Pillai, Thoppil Bhasi & T. N. Gopinathan Nair and critics like P. K. Narayana Pillai, Kuttikrishna Marar, M. P. Paul and Mundassery and lots of others in all branches of literature too numerous to mention.

MARATHI

Marathi language was derived from Maharashtri *Apabhramsa*. The history of Marathi literature can be divided into six periods.

1. The Yadav period 1189-1320 A.D. 2. The Bahamani period 1320-1600 A.D. 3. The Maratha period 1600-1700 A.D. 4. The Peshwa period 1700-1850 A.D. 5. The British period 1850-1947 A.D. 6. Contemporary period 1947.

During the first two priods, Marathi literary genius occupied itself chiefly with religious and philosophical exposition chiefly in verse. *Viveka Sindhu* (Sea of Philosophy) by Mukundaraj, a yogi of 'Natha Pantha' is accepted as the first major work. The origin of Marathi prose is also to be found in the Yadav period. The credit for it goes to another religious sect called the 'Mahanubhavas'. They eschewed Sanskrit deliberately and made Marathi a vehicle for the propagation of religion and culture. However, the influence of Sanskrit is seen in the acceptance of literary forms and theories.

An extremely effective revolt against Hindu orthodoxy came from Jnanadeva. *Jnaneswari* (a commentary on *Bhagavat Gita* and *Amritanubhava* (A Nectar of Experience) are his two masterpieces. Saintly singers sprang up in all castes and communities. Namdeva, who was a tailor became a disciple of Jnanadev

(Jnaneswar). He became a great poet propagating a devotional cult called 'Varkari Panth'. Gardeners, potters, goldsmiths and such other people extolled 'Bhagawat Dharma' in acceptable verse.

In the Bahamani period, conversion to Islam took place on a mass scale. The flame of Hindu religion, however, was kept up with considerable zeal. The works of Ekkanath are to be sepcially remembered in this connection. He was a great saint and social reformer. His *Bhavartha Ramayana* brought the message of *Bhagawat cult* to the people with great power. Jainism too enriched Marathi in this age.

When we pass on to the third period, the most notable aspect is the contribution of Christian missionaries in Goa. Father Sephens (1549-1619) who came to India, studied Marathi language so well that he could compose charming verses in it. His *Krista purana* is considered a classic on the model of *Jnaneswara*.

The dawn of 17th century was most eventful in the political and literary history of Maharastra. Tukaram (1608-49), the greatest saint poet of the language, contributed in such measure to devotional poetry that he is remembered with great veneration even today. A *Sudra* by birth, he wrote 3000 *abhangas*. Their appeal is timeless. He was followed by Ramadas.

Coming to the Peshwa period, Krishnadayarnava and Shridhar are the leading poets. New literary forms were successfully experimented with during the period and classical styles were revived, especially the *Mahakavya* and *Prabandha* forms. A period of transition followed in the first half of the 19th century. In 1818 Maharashtra lost its freedom to the British. Keshavsut, the father of modern Marathi poetry, published his first poem in 1885. The years in between witnessed a great change in the literary scene. In fact, modern Marathi literature took shape during this period.

As in other Indian languages, the Christian missionaries played an important role in the production of scientific dictionaries and grammars. Periodicals slowly became popular, starting with *Digdarsan* in 1840. About the same time *Darpan*, the daily newspaper, also came into being. Modern Marathi prose flourished though various new literary forms like the essay, the biography, the novel, the short story, the prose drama etc.

Chiplunkar's *Nibandhamala* (essays), N. C. Kelkar's biographical writings, the novels of Hari Narayan Apte, Phadke and V. S. Khandekar, and plays of Mama Warerkar and Kirloskar are particularly worth noting. Apte's novel *Pan Lakshat Kon Gheto* which deals with the poignant experience of a child-window has been translated into many Indian languages.

Similarly Khandekar's *Yayati* which has won for him the Jnanapith Award. Vijay Tendulkar and C. T. Dhanolkar have written and produced a good number of plays which have earned a reputation beyond the borders of Maharashtra during the last quarter of a century. Marathi has a flourishing contemporary literature in every branch of verse and prose.

The brigtest star of modern Oriya literature is Fakir Mohan Senapathi. He was a poet, novelist, administrator, social reformer, printer, businessman and patriot all rolled into one.

ORIYA

Of all the North Indian languages, Oriya happens to be the least affected by Perso-Arabic influence and is nearest to the original Sanskrit. However, its literature sprouted in the language of the people expressing their dreams, thoughts and experiences. Though some scholars trace the origin of Oriya literature to the 9th cent. A.D., the language flows into a regular stream of poetry only by the 13th century. In the initial four hundred years, we notice a reflection of different religious faiths, Buddhism, Saivism, Shaktism and Vaishnavism (with twin branches of Rama cult and Krishna cult). We also find a considerable amount of folk literature.

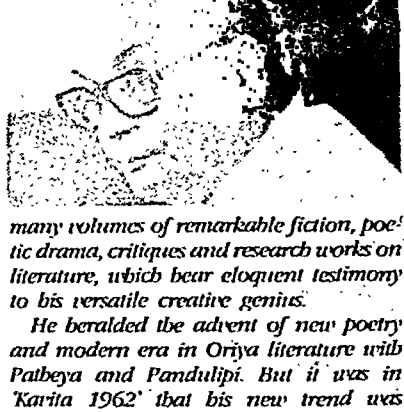
Sarala Das of the 14th century is the Vyasa of Orissa. Strangely enough, this semi-literate kisan became a leading poet of the language. His real name was Sidheswar Parida, h adopted the name as he considered the Das (servant) of the deity, Sarala D quality and fervour of his devotion is e

Exponent of Distilled Verse

Sachi Routroy, 70, winner of the Jnanpith Award for 1986, is regarded as the harbinger of freedom in meter, rhyme and ornamentation. As an exponent of 'distilled poetry' he believes that it should capture the readers' imagination with its own innate powers.

He has a mastery of imagery which enables him to transmit his own poetic experiences to his readers through colour, sound and telescopic designs and his poetry is endowed with a robust humanism interspersed with a defiant declaration of human rights against a decadent social order.

He started writing poetry at a very early age and his first poem appeared when he was just 12 years. He also wrote a book of poems entitled 'Patheya' which was published in 1932. Since then he has published 16 outstanding collections of poems. Apart from poetry, Routroy has brought out



many volumes of remarkable fiction, poetic drama, critiques and research works on literature, which bear eloquent testimony to his versatile creative genius.

He heralded the advent of new poetry and modern era in Oriya literature with Patheya and Pandulipi. But it was in 'Kavita 1962' that his new trend was crystalised.

Routroy's contribution to modern Oriya prose is equally significant.

fied in the manner in which he has adapted the *Mahabharata*. His *Vilanka Ramayan* and *Chandipurana* are also well known. Sarala Das is followed by a group of scholar-poets who deliberately eschewed Sanskrit and wrote in simple Oriya to serve the masses. They are Balarama Das (Oriya *Ramayana* and *Mahabharata*) Jagannatha Das *(Bhagavata Purana)*, Anant Das, Yosowant Das and Achyutanand Das.

About the end of the 15th century and the beginning of the 16th, the influence of Chaitanya and Jayadeva was dominant on Oriya literature. This continued in different ways for about three centuries. The philosophy of Chaitanya and the poetry of Jayadeva changed the pattern of versification in Oriya. Upendra Bhanja is the most outstanding poet of this new emphasis. For erotic description and play of words, Upendra is specially noted.

Vaishnavism propagated by the Chaitanya school produced welcome results in literature. The lyrical poet Baladeva Rath, Dina Krushna Das and Bhaktacharan Das are other outstanding poets. Later in period of time we may remember the lyrical singer Gopal Krishna in the blind poet Bhima Bhoi.

Prose was practically born in the Bri Period, and it developed with amazing ra ity. Poetry found new ways of expression, new themes covering political, social patriotic sentiments were handled by po novelists and playwrights. In modern O literature, the brightest star is Fakir Mo Senapati (1843-1918). He was poet, nove administrator, social reformer, prin businessman and patriot, all rolled into Strange to say, he had only two years' for education.

He undertook literal translation of *Ramayana* and the *Mahabharata* into O His *Galpa-Swalpa* (Collection of stories) a novel *Chaman Atha Gunitha* are particul well known. This novel is a masterpiec realistic fiction, depicting the victimizatio innocent weavers. Next to Senapathi co poet Radhanath whose magnum opus is epic *Mahayatra*, written in blank vers Miltonic lines. Other distinguished poet the modern period are Gopabandhu Baikunthanath Patnaik, Kalindicharan Pani hi, Mayadhar Mansinha and Gurupr Mohanty. Gopinath Panigrahi's *Matira M isha* and Mohanty's *Amritara Santana* (So

nas, Aranyakas and in the *Upanishads* there occur passages which are remarkable for their literary beauty.

Then there was a period commencing with the age of Panini (5th cent. BC) when books on ancillary sciences or vedangas were written. eg. Panini's *Ashtadhyayi*, Pingala's work on metres etc. In the third period of Sanskrit poetry known as the Classical period we have the epics, *Mahakavyas, Puranas, Narrative poems* (adulatory poems) *Prasasti Kavyas, and Sandesha Kavyas* (message poems). The two major epics, the *Mahabharata* of Vyasa and the *Ramayanaa* of Valmiki are outstanding creations of the Indian poetical genius. They have considerably influenced the life, culture and literature of India.

The theme of the *Mahabharata* (the biggest epic in the world) is the battle between the Kauravas and Pandavas on the plains of Kurukshetra (1000 BC). The *Bhagavadgita* is ıe of the many episodes in this epic. The *mayana* deals with the adventures of Rama 24,000 couplets. *Bribatkathamanjiri* of shemendra and *Kathasaritsagara* of omadeva are important *Katha* literature. *Pan-batantra* is the oldest collection of fables in anskrit (4th cent. AD).

The *mahakavyas* which according to ccepted canons should contain majestic de-riptions of war, nature and political intrigues e the pride of Sanskrit literature. svaghosha's *Buddhacharita* and *Saundar-nanda* are Buddhist *Mahakavyas, Kumar-sambhava* of Kalidasa deals with the puranic ory of the marriage of Parvati and Siva and ıe birth of Skanda. The poem opens with a ntillating description of the Himalayas.

Raghuvamsa is another *mahakavya* of Kali-isa where the poet is seen at his best. The ter poets were guided more by theform than the spirit behind the form. However, the eater among them are Bharavi (c. 600). hatti (7th century), Kumaradasa and Magha . 700).

Among the message poems it is *Meghaduta* Kalidasa that has set the pattern. Of the other fifty message poems, the more well known are *Sukasandesa, Chatakasandesa* and *Hamsasandesa*. The *Harshacharita* and *Kadambari* (Bana) are justly regarded as the crowning achievements of Sanskrit prose fiction.

Sanskrit drama has a long history tracing back to Asvaghosha (2nd century AD). Only fragments of his three plays are available. A century later we have Bhasa who is ascribed to have written 13 plays (discovered in Trivandrum). The conventions of Sanskrit drama are all observed by Bhasa. Kalidasa is the author of three outstanding plays *Malavikagnimitra, Abhijnana Sakuntala* and *Vikramorvasiya*. His treatment of the Sakuntala story in particular reveals him as a master of the dramatic art superior to all others in portraying the emotion of love. Sudraka is another important dramatist whose *Mrichha Katika* is well known. Of their successors in this literary form the more important are Visakhadatta, Harsha, Bhavabhuthi, Krishnamisra, Rajasekhara and Bodhayana.

The Indian tradition of 'Kaviya Sastra' and applied literary criticism is by and large the Sanskrit tradition which almost all the modern Indian languages have wholeheartedly adopted.

There is also an abundance of philosophical and technical literature in Sanskrit. Of these 'Vedanta' was to exert the most profound effect culminating in the writings of Sankara (AD 800) leading to further interpretation of Ramanuja and Madhava. In the sphere of domestic and social conduct there evolved a body of literature known as dharmasastra.

As regards politics and state craft Kautilya's *Arthasastra* is well known. Equally known are the mathematical treatises of Aryabhata and Bhaskara and the medical books *Charaka-samhita* and *Susruta*.

The Indian tradition of *Kavyasastra* and applied literary criticism is by and large the Sanskrit tradition which almost all the modern Indian languages have adopted.

The great stalwarts Bharata, Dandin, Vamana, Ananda Vardhana, Kuntaka and Abhinavagupa — all belong to the period covering the dark ages of Europe. These theoreticians gave us valuable concepts like *rasa, guna, riti, vakrokti, dhwani, rasadhwani* and *auciiya*.

Bharata's *Natyasastra* is the earliest treatise available on the subject.

Sanskrit continued to be a vehicle of literary expression even in the modern period, though it was less prolific not being a language of the ordinary people. *Mahakavyas* were composed on the Buddha, Christ, Sankaracharya and Narayana guru. There were also long poems on Mahatma Gandhi, Rajendra Prasad, Tagore, Jayadeva and Jawaharlal Nehru. Quite a few books have been translated from languages like Tamil, Telugu, Malayalam etc. into Sanskrit.

Influenced by the languages of the west and by the active modern Indian tongues, Sanskrit writers have written poems, biographies, novels and short stories in the contemporary period. Both in quality and quantity they may not compare favourably with similar writings in other Indian languages. But the Sanskrit Muse is kept alive by lovers of the language.

SINDHI

The origin and ancestry of the Sindhi language are disputed by scholars even today. Many scholars hold the view that Sindhi belongs to the ancient language of the Indus valley prior to the period of Sanskrit. Even in the matter of script, there has been considerable change. The new Perso-Arabic script was approved only in 1853.

The early poetry in Sindhi was based on local romantic tales. The early poems called *Gahiin* were not recorded but handed down by word of mouth. Pir Sadruddin (1290-1409), an Islamic missionary, is considered the pioneer of Sindhi religious poetry.

The first great Sufi poet is Qazi Qazan (c. 1465-1551). His seven verses have been preserved. He was influenced by Bhakti Kavya movement of North India. Second only to Qazan is Shah Karim (1637-1623) whose verses are imbued with mystic thought.

What is important to note in the early Sindhi poetry is the fusion of the Islamic and Hindu

1713) has composed poems in the c idiom, yet heralding a new era in poetry.

The premier poet of Sindhi, howe Shah Abdul Latif Bhitai (1689-1752). lection of poems titled *Rasalo* (Messag is an expression of high thoughts wit artistry. He provides a varied fare poems. We have also other importan like Ruhal (1734-1804), Chain Rai Sa Dalpat (1769-1841) who were Vedanti others who wrote religious poetry of and Christians.

Coming to modern times, we hav who followed the Persian poetical for *ghazals, qasidas, rubais* and *mathna*

Among them the most important Mohamad, Muhammad Qasim, Muham Shah, Hafiz Hamid and Mirza Qalic Freedom movement came to Sindh so the partition of Bengal. Lalchand Amarc was the champion of the national mo among the writers. Poets and prose gave expression to nationalism and

Mirza Qalich Beg was the most prolific and versatile writer Sind has produced. He has about 350 titles to his credit. His 'Zinat' is the first Sindhi novel of merit. 'Zinat' is the heroine's name.

sivism as in other Indian languages.

Mirza Qalich Beg (1853-1929) was t prolific and versatile writer Sind h duced. He has about 350 titles to hi originals and translations. His (Heroine's name, 1890) is the first novel of merit. Other important nove Lalchand, Amardinomal, Bherumal chand, Ram Panjwani, Gobind Malh Ajwani and Krishin Khatwani.

TAMIL

Tamil language has the special being at once classical like Sanskrit, Latin and vigorous and modern modern Indian languages. Its history traced back to the age of *Tolkappiy* earliest extant Tamil grammar g ascribed to 500 B.C. Among the D languages it is least influenced by

called Sangam literature and it is dated between 500 BC and 200 AD. Though a considerable part of the early poetry has been lost, some of the bards and patrons decided to preserve a part of it in certain anthologies (about 4th century AD). These are the Ten Idylls (*Patirruppattu*) and the eight anthologies (*Ettuttohai*). Four hundred and seventy three poets, of whom thirty are women, have been identified. These are mainly classified into two. *Akam* or esoteric dealing with love and *Puram* or exoteric dealing with war.

In this period, Tamil literature was considerably bound by literary conventions. The poets were keen on keeping up the tradition. The land was treated as five regions viz. mountains, forests, fields, coasts and deserts and the theme of love in five aspects viz. union, patience, sulking, wailing and separation. The poet dealing with a certain aspect of love restricted himself to a particular region, season, hour, flora and fauna. These literary conventions are explained in *Tolkappiyam*.

Puranaanuru is 400 verses on Puram the moving story of Kannagi.

Manimekhalai is the daughter of Madhavi and Kovalan, the hero of *Silappadhikaram*. *Kamba Ramayanam* is an immortal classic in Tamil. Though Kambar based his work on the Sanskrit *Ramayana* of Valmiki, his rendering shows that he was a supreme artist. It is different in plot, in construction and in the delineation of character. *Kambaramayanam* runs to 10,368 verses.

Tamil is rich in devotional literature. Nayanmars are the exponents of Saivism and Alwars that of Vaishnavism. Thiru Jnanasambandar, Thirunanukkarasar, Sundarar and Manikkavacakar are the four great Nayanmars. The great Alwars are 12 in number. Kulasekhara Alwar and Andal are specially remembered. There are 5 major *kavyams* and 5 minor *kavyams* in Tamil. Jain and Buddhist works are in abundance in the language.

Coming to the period between 13th & 18th centuries, we notice that Muslim and Christian impact on Tamil literature. Umaruppulavar has composed a long poem of 5000 verses on the

Subramania Bharati is the greatest poet of modern Tamil. His patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and fundamental equality are his theme.

themes. It serves as a window on the Tamil people 2000 years ago. *Aganaanuru* is 400 poems on love themes. The length of these poems varies from 13 to 37 lines. There are other collections like *Natrinai, Kuruntogai, Ain-kurunuru, Paripadal*, etc. which are quite well known.

Tiruvalluvar's Tirukkural is acclaimed to be the greatest Tamil classic. It expresses the most profound thoughts on the many problems of life. Each verse is a couplet composed with great economy of words. The book is divided into 133 chapters each containing 10 verses. The chapters are arranged in three books dealing with virtue, wealth and pleasure.

Round about the 3rd century AD, Tamil has produced two epics *Silappadhikaram* and *Manimekhalai* which are considered twin epics like the *Ramayana* and *Mahabharata*. The author of *Silappadhikaram* was the son of a Chera King Ilango Adikal. The title means the "Story of the Anklet" and the epic describes

life of prophet Muhammed. The Christian influence began with the Portuguese and continued with the Danes, the Dutch, the French and the British. Beschi, Caldwell, Winslow and Pope have made significant contributions to Tamil. The Italian priest Beschi (1680-1747) composed the magnificent poetical work *Tembavani* (The Insatiable Beauty) on the life of St. Joseph. Vedanayagam Pillai and Krishna Pillai are two other Christian poets.

Twentieth century has produced many talented men of letters in various fields, Poetry, Prose, Drama, Novel, Biography, Short Story etc. Dr. Swaminatha Iyer unearthed many literary works and edited them. Swami Vadachalam, Thiru V. Kalyanasundera Mudaliar and V. O. Chidambaram Pillai are great writers of the modern period. However, the greatest poet of modern Tamil is Subramania Bharati whose patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and th[illegible]

equality of all men find eloquent expression in his verses.

Rajam Ayyar, Madhavayya, Pudumaipithan, Ku-pa, Rajagopalan and Kalki Krishnamoorthy have contributed much to the field of Tamil fiction. These writers along with Bharati ushered in the new epoch of Renaissance in Tamil literature.

TELUGU

Among the Dravidian languages, Telugu exhibits the greatest influence of Sanskrit. Telugu literature is generally divided into six periods. 1. The Pre-Nannaya period (upto 1020 AD). 2. The age of the Puranas (1020-1400). 3. The age of Srinatha (1400-1510). 4. The age of the Prabandhas (1510-1600). 5. The Southern period (1600-1820) and 6. The Modern Period.

In the earliest period there are only inscriptions from 575 AD onwards. Nannaya's (1022-1063) translation of the Sanskrit *Mahabharata* in Telugu is the first piece of Telugu literature as yet discovered. The diction is so masterly that historians think that there must have been earlier works in Telugu. After the death of Nannaya there was a kind of social and religious revolution in the Telugu country.

Virasaivism propagated *bhakti* towards Siva as the only means of attaining salvation. Tikkana (13th cent.) and Yerrana (14th cent.) continued the translation of the *Mahabharata* started by Nannaya. *Yerrana* was also a devotee of Siva. Quite a few poets continued writing in Telugu and we come to the age of Srinatha.

During this period some Telugu poets translated Sanskrit poems and dramas while others attempted original narrative poems. The popular Telugu literary form called the *Prabandha* evolved during this period. Srinatha (1365-1441) is the foremost poet who popularised this style of composition (a story in verse having a tight metrical scheme). Srinatha's *Naishadham* is particularly well known.

We may also refer to the *Ramayana* poets. The earliest Ramayana in Telugu is generally known as *Ranganatha Ramayana* though authored by Gona Buddha Reddi. Then there are the great religious poets like Potana (1450-1510), Jakkana (second half of 14th century) and Gaurana (first half of 15th century).

The golden period of Telugu literature is the 16th and 17th centuries. Krishnadevaraya's *Amukta Malayada* is regarded as a Mahakavya. Peddana's Manucharita is another outstanding Mahakavya. Telugu literature flourished in the south in areas like Madurai, Thanjavoor etc. and that is why the age itself is called the 'Southern Period'. We find a comparatively larger number of poets among the rulers, women and non-Brahmans. They popularised the desi metres.

With the conquest of Deccan by the Moghuls, there was a period of decadence (1750-1850) in literature. Then emerges a period of transition (1850-1910) following a long period of Renaissance. European savants like C. P. Brown played an important role in the development of Telugu language and literature. In common with the rest of India, Telugu literature of this period was increasingly influenced by European forms like the novel, the short story, the prose drama, belles letters etc.

The father of modern Telugu literature is K. Viresalingam Pantulu who wrote a novel 'Rajashekhara Charithamu', inspired by the 'Vicar of Wakefield'. His goal was to erradicate social evils.

The father of modern Telugu literature is K. Veeresalingam Pantulu (1848-1919) who wrote a novel, *Rajasekhara Charitamu* inspired by the *Vicar of Wakefield*. He was the first person in modern times to use literature to eradicate social evils. He was followed by Ravaprolu Subba Rao, Gurajada Appa Rao, Viswanatha Satyanarayana, Katuri Venkateswara Rao, Joshua Devulappalli Venkata Krishna Sastri and others in the sphere of poetry. We also find the progressive movement, free verse movement and the *Digambara* style finding expression in Telugu verse. The well known modern Telugu novelists are Unnava Lakshminarayana (of *Malappalli* fame), Viswanatha Satyanarayana (*Veyipadagalu*), Kutumba Rao and Buchi Babu.

URDU

The grammatical structure of Urdu is based on Western Sauraseni Apabhramsa but its vocabulary, idioms and literary traditions drew heavily from Central Asian, Turkish, and Persian sources. The literary flowering of Urdu does not go farther than the 13th century. Urdu literature developed in the bazaar, the monastery and the *salons* and all these places had their own characteristic features.

Traditional Urdu poetry comprises of a few literary genres that have a definite history and development. They are the *masnavi* (every couplet has a different rhyme), ghazal (talking to the tender sex), qasida (a genre akin to the ode), *marsia* (elegiac poem), rekhti and nazm. The early stages of the development of Urdu was a two-pronged movement. 1. The saints and mystics made it a vehicle for the propagation of their unity and compromise. 2. The Hindu saints of the *Bhakti* movement under the Islamic influence encouraged the idea of oneness. The literary precedence of the South over the North can only be understood in the historical context.

Sultan Alauddin Khilji invaded the South during 1294-1311 AD. The cultural confluence was responsible for the production of good literature in the South. The earliest known writer in Deccani Urdu is Shaikh Ganjulilm (d. 1393). The next notable figure is Khwaja Banda Nawaz (1320-1422). His Mirajul Ashiqeen is a Sufistic treatise in prose. Other *masnavi* writers are Mukimi of Bijapur and Ahmed Ajiz.

The Persian tradition has taken root in Urdu poetry in the 17th century. Mulla Wajhi is a great literary figure of this period. His *masnavi*, Qutb Mustari (1609) and his rhyming prose allegory *Subras* (1634) are the gems of Urdu literature, produced in the Deccan. When the tradition of the *masnavi* spread to the North, the Deccani language yielded place to the Khadiboli or the Rekhta or Urdu.

The *masnavi* now yielded place to the *ghazal*, which became the most popular form of Urdu poetry. Though ghazals were written by many poets like Amir Khusrao, Hashmi and Qutb Shah, Wali was the most outstanding. He gave a new dimension to the ghazal. He was a passionate lover of beauty. Wali also composed a few *qasidas*. Seraj (1715-63) is another distinguished composer of ghazals.

Traditional Urdu poetry made considerable progress in the 18th century under the influence of what is called the Delhi School of Urdu poetry. They further standardised the diction. The more important among them are Khawia Mir Dard, Mir Hassan and Mushafi. There is also the Lucknow School of poets who had their own valuable contribution to Urdu poetry. The major poets are Shaik Imam Baksh Nasikh. Haidar Ali Atas and Ali Ausat Rask. Traditional Urdu poetry reaches its pinnacle with the verses of Ghalib.

During the last three decades of the 19th century, the activities of the Urdu writers were influenced by the towering personality of Syed Ahmed Khan (1817-98) who started the Aligarh movement inspired by Rammohum Roy.

Traditional Urdu poetry made considerable progress in the 18th century under the influence of what is called the Delhi School. With the verse of Ghalib the traditional poetry reached its pinnacle.

Many Urdu poets were influenced by Iqbal (1875-1938), a poet of patriotic passion, who adored nature. In Urdu poetry we see the romantic and progressive trends.

Urdu fiction is rich in *Dastan* (cycles of legends) mostly translated from Persian. The works of Sarshar, Nazir Ahmed and Sharar mark the beginnings of the novel. Rusva's *Umrao Jan Ada* (1899), a novel appearing in the form of an autobiography of a dancing girl of Lucknow, has achieved international standards. Premchand, who is claimed also by Hindi is a giant among Urdu novelists. Drama also has flourished considerably in Urdu. Banarasi, Talib, Ahsan and Lucknavi are famous as playwrights. Husain Azad's anecdotal history of Urdu poetry titled *Ab-i-Hayat* has laid the foundations of modern literary criticism.

DOGRI

Dogri is one of the modern Indian languages spoken in the state of [illegible]mu and

Kashmir and also in Himachal Pradesh. It has traces of old Sanskrit dialects as well as the dialects spoken by the Khasis, Yavanas, Takkes etc. in the Dogra Hill areas. Rev. Carey has made mention of it in 1816 and John Beames in 1867. Its old script Takari has been replaced by the Devanagari script.

Dogri has a rich tradition of folk literature consisting of folk-tales, riddles and proverbs. These deal with every aspect of life from the cradle to the grave. There are also quite a few long narrative poems in praise of gods known as *Bhetas*.

Among the early Dogri poets mention may be made of Manak Chand (16th century), Gambhir Rai (17th century), Devi Ditta (18th century) and Ganga Ram (19th century) *Rajauli* (the Genealogy of Kings) a translation of a Persian work by Teheldas (1614-59) is the earliest prose work in Dogri. The first book printed in Dogri is the translation of the New Testament brought out (in 1818) by the Serampore missionaries.

During the first four decades of the 20th century seven poets wrote in Dogri. Among them Hardutt Shastri (1890-1956) is the most outstanding. He wrote on socio-religious and themes. Dini Bhai Pant (b. 1917) is considered to be the first Dogri poet of modern consciousness. He gave a new dimension to Dogri poetry. Patriotism was the dominant theme of Dogri poetry for some years after the Pakistanti invasion. It gave way to the poetry of socialism.

Ghazal is popular in Dogri. Kunwar Viyogi is outstanding in the composition of ghazals. Short stories are popular in the language. Narendar Khajuria writes fine stories and other forms of prose. He is a past-master in using irony and humour. There are also a few plays and novels in Dogri. Among the novelists Ved Rahi's name stands out.

KONKANI

Though Knonkani is an independent language, in many respects it is close to Marathi and Hindi. Thus its natural script is Devanagari though Kannada, Malayalam and Roman scripts have also been in use depending on circumstances.

Konkani developed an indigenous literature long before the Portuguese conquest, but much of it has been lost. The Konkani poets of the traditional type made the devotional works of the Maratha Brahmins their own. Tales of the *Ramayana* and the *Mahabharata* are preserved in the Roman script. Krishnadas Shurma (16th century) had done the translation from the Marathi original.

Father Joachim de Miranda (18th century) is the author of the largest Konkani hymn *Righ Jesu Mollantum* (the Resurrection of Jesus). Another important work *Papience Xeratbin* (Protector of Sinners) is by Dona Barreto. A considerable amount of Christian literature was written in Konkani during the 17th century.

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoi Goembab (1877-1946) was the main inspiration. Among the modern

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoy Geombab was the main inspiration. There are quite a few writers who are very popular.

poets, special mention may be made of B. Borkar (b. 1910), M. Sardesai (b. 1925), and R. V. Pandit (b. 1917). Borkar writes in Marathi too. Konkani plays, particularly of the folk variety, are quite popular. Fiction is gaining ground in the contemporary period. The important novelists are Reginaldo Fernandez, M. Sardesai and V. J. P. Saldhana. Journalism is developing fast which also means the Knonkani prose is coming into its own.

MAITHILI

The present day Maithili speaking area is about 30,000 square miles in extent. The first important literary work is a collection of Buddhist mystic songs called *Caryapadas* (8th to 11th century). In the age of Jyotiriswara (c. 1300-1400) Maithili literature flourished. He himself contributed several works in poetry, drama and prose. His most famous work is the play, *Dhurttasamagama*. Vidyapati (1360-1448) was patronised by several kings and queens. He wrote of love and separation, of

nature, of devotion to Ganges, Krishna, Siva, Sakti and of birth and death. The next stage in the development of Maithili literature was the rise of medieval drama. Nandipati's *Srikrishna Keli Mala,* Upadhyaya's *Parijataharana* and Ratnapani's (c. 1850) Ushaharana are outstanding works.

Coming to the modern period, we have quite a few poets, novelists and prose writers who are very popular. Some important names are Manabodha, Vaidyanatha, Paremeswara Jha, Harimohana Jha, Kumara Gangananda Sinha, Mayananda, Lalitha, Dhirendra, Ramananda Renu and Somadeva.

MANIPURI

Manipuri is a Tibeto-Burmese language. It is an amalgam of seven dialects spoken by seven clans. The language has a script of its own. The history of Manipuri literature is divided into three periods: the Ancient Period from AD 33 to the end of the 17th century, the Middle Period from the beginning of the 18th century till the middle of the 19th century and the Modern Period from mid 19th century onwards.

Manipuri has a rich tradition of folk literature. As a matter of fact, the bulk of Manipuri literature down to the 19th century was folk in content and style. The folk literature consists of folk-songs, ballads and folk-tales. It is extremely difficult to date books and assign them to authors. The *Kumbaba* is a royal chronicle of Manipuri. It contains records from 33 AD when Pakhangba ascended the throne. Certain important prose works are *Numit Kappa* (Shooting the Sun, c. 10th c.), *Naotinkhon Phambal Kaba* (between 1576 and 1697), *Lethak Lekharol* and *Pantoibi Khongul,* both of 17th century. The ancient Manipuri style is ornate and verbose.

Specimens of traditional poetry are to be found in the translation and adaptations of Indian classics. The best specimen is *Hijan Hirao* (Royal Boat). In this poem, human qualities are ascribed to animate objects and nature. *Ram Nongaba* (Death of Rama) by Labanga Singh (18th century) describes the death of Rama in beautiful Manipuri.

Modern Manipuri poetry is recent in the sense that it had to wait till the second decade of this century to get a form. *Le Paren* (Garland, 1929) by Kamal Singh is an outstanding work. A.D. Singha (1907-44) is a composer of epic poetry in Manipuri. His *Kamsa Badha* (1942) is a notable work. There are also experimental poems composed after 1947, interesting dramas, about a dozen readable novels and some short stories of worth in Manipuri.

NEPALI

The Nepali language belongs to the Indo-Aryan family. It has descended from the Khas prakrit. Nepali is fairly rich in folk literature. Its traditional poetry has come to shape only in the 18th century. Subananda Das was one of the recognised poets of the early period. He was followed by Shakti Ballav Aryal and Udayanand Aryal.

Manipuri has rich tradition of folk-literature. The bulk of Manipuri literature down to the 19th century was folk in content and style. It consists of folk-songs, ballads and folk-fables.

Most of the writers of this period were well-versed in Sanskrit and hence Sanskrit patterns were approved for Nepali compositions. *Gopika Stuti* and *Srimad Bhagawat* were translated into Nepali. Basant Sharma's *Krishna Charita* is regarded as the first *khandakavya*. Bhanubhakta translated *Adhyatma Ramayanam* into Nepali (1841-68), Motiram Bhatta, Lekhnath and Balakrishna Sama are important poets of the modern period.

In Drama, Novel and Short Story, Nepali has claims for sizeable contributions. Among the playwrights the more important names are S. B Aryal and Balakrishna Sarma, and among novelists Pratiman Lama, Rudraraj Pandey and Shiva Kumar Rai. Parasmani Pradhan is a good prose writer and researcher

RAJASTHANI

Rajasthani is an Indo-Aryan langu[illegible] having its roots in Vedic Sanskrit a[illegible]seni Prakrit. Its script is Devanagari. I[illegible] of folk literature consisting of l[illegible]

proverbs, folk tales and panegyrics.

Historians have divided traditional poetry nto two periods; the early period starting rom 1050 AD and ending with 1450 and the econd (medieval) period from 1450 to 1850. Thereafter it is modern poetry. That early period abounds in Jain poetry. The richest period for poetry and prose compositions is he next period.

All the masterpieces of traditional poetry are products of this period. Besides a great many full-length poetic works dealing with wars, mythological events and devotional themes, several *Dulras* and *Gitas* (a kind of metre) have been composed on all kinds of subjects. Padmanabha, Vihu Sujo, Aluj are a few of the important composers.

Modern poetry starts from the forties of this century. This reflects the impact of western culture. The first book of modern poetry Badli (Cloud) by Chandra Singh (b. 1912). It describes the joys and sorrows of rain in the desert. N. R. Sanskarta, N. S. Bhatti, R. Kalpit and G. L. Vyas are important modern poets.

Mention may also be made of Vivaja Dan Detha and Rewat Dan Charan whose contribution to modern Rajasthani literature is considerable.

Drama and novel have not flourished well in Rajasthan; but stort stories (known as *vat*) are many and of a high standard. M. D. Vyas pioneered the modern short story with his *Varas ganth* (The Birth Day, 1956).

INDIAN MUSIC AND DANCE

In music and dance India can legitimately be proud of her past, a tradition dating back to the days of the 'Vedas'.

To an extent, it is established now that Indian Music had its origin in the Vedas where it found its moorings. As centuries rolled on it developed into an integrated well-codified form. Development of music commenced with the folk idiom evolved in consonance with regional ingenuity, and slowly blossomed into classical forms. Though classical music in India differs from region to region, there is an underlying current of unity.

There are two systems of music in India, the

Ravi Shankar during his concert in Cologne, W. Germany

definite. The Dhruta is double the Madhya (middle) which in turn is twice the Vilamba.

COMPOSITIONS

Prior to Thalapakkam Annamacharya, who evolved the Krithi pattern as in vogue today-Pallavi, Anupallavi and Charanam- Carnatic music had its own system. In Tamil Nadu saint composers like Arunagiri Nadhar, Muthu Thandavar, Manikavachagar and Thayumanavar had composed devotional canticles like Thirupugazh, Thevaram and Kirtanas. As there was no system of notation obtaining then, these were learnt and mastered by the ear

It was Purandaradasa from Karnataka who not only gave shape and form to Carnatic music by perfecting the Krithi pattern but evolving a number of musical exercises in the form of Sanili, Jandai, Dhattu and Geetam. This gave structure to the idiom. It can therefore be said that it was *Purandardasa* who gave a launching pad to *Thyagaraja, Syama Shastri* and *Muthuswami Dikshitar* to pour forth their devotion into music This trinity finally merged as the greatest contributors to the enrichment of Carnatic music. Thayagaraja sang in simple Telugu in praise of Rama who was his Ishta Devata. As he had a large number of disciples by his side always his compositions easily caught on and became popular.

The unique feature of his compositions is that every song was the result of an inner inspirational urge, having for its background a personal experience or anecdote. He covered almost the entire range of ragas and more than that he covered a raga in his composition from various angles leaving very little elbow room for future composers. This must have prompted Dikshitar to adopt the Dhrupad system for doubling the pace of the stanzas in between to give a new look to his compositions. Syama Shastry sang in praise of Kamakshi, the presiding deity at Kancheepuram. His compositions revealed his technical virtuosity in Carnatic music. While Thyagaraja's compositions can be learnt by listening, those of the other two in the trinity have to be learnt from a Guru.

There are also the Padams, Jhavelis and Kavadi Chindus to adorn the lighter side. The first two are the counterparts of the Thumris of the Hindustani style. They are erotic in content and have to be sung with emotion and a feeling for the lyrics.

Coming to the *Hindustani* idiom, the Dhrupad is the most ancient form of composition evolved by *Swami Haridas* and *Tansen*. The Swami lived some time at the end of the fifteenth century. He became a sanyasi belonging to the yogic lineage of the Andhra philosopher *Saint Nimbarka*. Bhakti was the keynote of his compositions. Tradition has it that *Baiju Bawra* and Tansen were his disciples. Tansen was born in the earlier part of the 16th century. Legend has it that he was the son of one Makarand Pande, and was named Ram Tanu and was christened Tanna Misra. He adorned the court of Akbar. He is credited with the creation of new ragas such as Miyan ki Malhar, Darbari Kannada and Miyaki Thodi. This idiom had gone into oblivion for long, but has now surfaced due to the efforts of the Daggar family. It has also caught on in the West in view of the robustness of the compositions.

It was Purandaradasa who gave a launching pad to Thyagaraja, Syama Shastri and Muthuswami Dikshitar. This trinity finally emerged as the greatest contributors to the enrichment of Carnatic music.

The word *Khayal*, of Persian origin means 'Imagination'. Though its origin is attributed to Amir Khusro to whom all untraceable things are traced, consensus of opinion is that it came into prominence due to the efforts of Sultan Mohammed Sharqui in the 15th century and became acceptable as a classical form from the time of Sadanand Nyamet Khan (18th century). Unlike the Dhrupad, it is more delicate and romantic. For in structure and technique, it has certain freedom not found in Dhrupad.

A Khayal need not start with an Allaap so necessary in a Dhrupad. It depends on the genius of the singer to beautify it, by giving each note its proper environment, gamakas and an inner sense of melodic proportion. There have been great names in this regard like Balakrishna Bua (Gwalior Gharana), Raha-

mat Khan (Gwalior Gharana), Natthan Khan (Agra Gharana), Fayyaz Khan (Agra Rangeela Gharana), Alladia Khan (Jaipur Gharana), Bhaskar Bua (Agra, Gwalior, Jaipur Gharanas), Abdul Karim Khan (Kirana Gharana), Abdul Walid Khan (Kiran Gharana).

The *Thumri* is a very light form often bordering on the vulgarly sensuous. It is quite possibly associated with the Radha-Krishna Bhakti cult and harnessed in Kathak. It was very famous in the 19th century under the patronage of Wajid Ali Shah, who was interested in Bohemian pleasures. He was a generous patron whose court was adorned with dancers and music luminaries. *The Tarana* is a composition which does not use meaningful words. Its libretto is made of syllables like nadir, tome, tarana and yalali which are mnemonics of tabla and sitar strokes. Its parallel can be found in the Thillana of the Carnatic idiom.

The Ghazals, now very popular, are more famous for their erotic content. Mirza Ghalib can be called the father of this style and he did not mince words in describing its purpose. His philosophy was wine and women. It is now a commercial viable venture and draws far larger audiences than any other style of Hindustani music.

The above touches only the broad and fundamental aspects of the two main styles of Indian music.

INSTRUMENTS

The flute, nadaswaram, veena, gotuvadhyam, thavil, mridangam, and the plain drum are some of the ancient instruments of music in India. The sitar and the tabala were late comers. The sitar appears to have infiltrated from Persia and has assumed great popularity. Except the veena which is neatly fretted, all other instruments are negotiated by the method of trial and error. Their handling depends on the ingenuity and dexterity of the player. The flute and the nadaswaram as also the shehnai are wind instruments; the veena, gottuvadhyam, sitar and now the sarod from Afghanistan are stringed instruments. The drum varieties are percussion instruments.

One point must be clearly borne in mind, that Indian instrumental music is *basically vocal* in conception. This is more pronounced in Carnatic music where the artiste reproduces only the works of great masters on the instruments. The element of licence and improvisation occur in the Alapana or the free prelude. But there is a slight difference. In Hindustani music, instrumental scores do not rely on musical compositions with lyrics alone.

A musical phrasing based on a given rhythmic cycle is taken up for delineation and is processed in five stages namely, Aalaap (free prelude), Jhod and Jhala (chords), Gaat (the musical structure to be negotiated), the Vilambit (slow pace) and the Dhrut (fast tempo). Though there are separate musical scores for musical instruments, the emphasis is on the Gayaki Ang. That is, effort is made to be as faithful as possible to the vocal style. However, these days great maestros are trying to innovate an experiment on patterns unique to the instruments and bring out their potentialities.

Great masters are trying to innovate an experiment on patterns unique to the instruments and bring out their potentialities. Pandit Ravishankar, Ali Akbar Khan and Amjad Ali Khan are instances in point.

Pandit Ravishankar, Ali Akbar Khan and *Amjad Ali Khan* are instances in point. Ravishankar has gone a step further and specialised in orchestration also. Not only that, he has also tried to effect a fusion between Indian and Western music. He has rubbed shoulders with *the Beatles, the Pop* and *Jazz* tribes. Only posterity will be able to decide the value and potentiality of this experiment. On the percussion side also there has been a lot of effort to achieve a common platform for drums of all types. *Zakir Hussain*, the young and ebullient son of the illustrious *Alla Rakha*, has made much progress in this direction. His effort clicked, as rhythm has universal appeal and brooks no re[illegible] judices.

The violin, a rec

also been Indianised and has become popular. It was in the 19th century that the brother of Muthuswamy Dikshitar, Baluswamy Dikshitar, introduced the violin to India. Since then it has caught on and become an indispensable adjunt to Indian music. In fact, it has eclipsed all other Indian instruments, in view of its portability, negotiability and range. It does not react wildly to the vagaries of weather, like its Indian counterparts and no wonder it is the most sought after instrument, especially in the South. Why south, one may ask.

In the North, the *Sarangi*, another stringed instrument, has been in vogue for centuries. But it has its inadequacies. It sports a plethora of vibrating strings which have to be returned for every change of raga in a concert. Added to this, it has to be operated by the knuckles instead of the fingertips. In the circumstances, there cannot be pin-point precision in notes in the speedier utterances. In inexpert hands, it will be an instrument of aggression. Years of practice only can enable an artiste to achieve perfection. But its beauty lies in its rich total timbre that can surpass even the voice. It can ir the heart in the Vilambit passages. So uch so that in the Akashwaani it is featured when any dignitary passes away. In the recent past the violin has started catching on in the north also. *V. C. Jog* and *Smt. N. Rajam* are two outstanding artistes of this instrument.

There have been great maestros of violin and there still are in the south. Starting from *Govinda Swamy Pillai*, there have been stalwarts like *Dwaram Venkataswami Naidu, Mysore T. Chowdiah, Rajamanickam Pillai* and *Mayavaram Govindaraj Pillai*. Today the younger set has achieved astounding perfection and professionalism almost eclipsing the old-timers. *Lalgudi Jayaraman, M.S. Gopala Krishnan and V. V. Subramaniam* are a few instances. Special mention must be made of the outstanding achievements of the young violin maestro *Prof. L. Subramaniam* who has not only mastered the Carnatic idiom but also the Hindustani and Western styles. In the last mentioned he is on par with the top rankers in the West. *Zubin Mehta*, when asked about his impressions of the Indian violinists, observed. 'Oh yes, that young lad L. Subramaniam, is tops'.

The number of Carnatic musicians is too large to admit of detailed mention. But it would be worthwhile to mention a few great names. *Palghat Rama Bhagavatar, Ariyakudi Ramanuja Ayyangar, Mahanjapuram Viswanatha Iyer, Madurai Mani Iyer, Chembai Vaidyanatha Bhagavatar, Palghat Mani Iyer, Palani Subbudu, Dakshinamoorthy Pillai*. But the sole credit for making Carnatic music popular in the West should go to *Smt. M. S. Subbalakshmi* who with her golden voice took the Western world by storm. More than that she harnessed music as a vehicle of devotion and philanthropy. Indeed she realised the real purpose of music.

DANCE

Among the various dance forms in vogue i

Bharatanatyam is poetry in motion. It is a highly traditional and stylized dance form, crystallized in the cast-iron mould of Bhrata's technique that disallows new-fangled gimmicks.

India are Bharatanatyam, Chakiarkooth Kathak, Kathakali, Krishnanattam, Kuchipud Manipuri, Mohiniattam, Odissi, Ottanthull and Yakshagana. Besides, there are umptee numbers of folk-dances peculiar to vario regions and sub-cultures.

Bharata Natyam is poetry in motion. Traci its hoary origins in the Natya Shastra, writt by the great sage, Bharata, it is a high traditional and stylized dance form. Cryst lized in the cast-iron mould of Bharat technique, this art form glassily disallo new-fangled innovations or gimmicks exce in repertoire and forms of presentati Emerging far back in the labyrnthine twists ancient history (as information for the d conscious, 4000 B.C. is the ascribed date to t Natya Shastra), Bharatanatyam has been i mortalized in successive generations, as mu by the sinuous grace of great dancers as by nimble fingers of renowned sculptors w have demonstrated the perfection of Bhara technique in the flowing lines of tem

sculptures.

Its *present* form was evolved by the Tanjore quartet namely Poniah Pillai and brothers. Earlier variedly known as Dasi Attam and Sadir, it was practised by Devadasis of the South Indian temples. It went into disrepute due to economic and social conditions and it was Rukmini Devi who gave it new life and respectability. Its format consists of Alarippu (invocation), Jathi Swaram (note combinations), Shabdam (notes and lyrics), Varnam (a combination of pure dance and abhinaya), lighter items like Padams and Javalis (all erotic) and finally the thillana (again pure dance). On par with Rukmini Devi, there was Bala Saraswati, the queen of Bharata Natyam.

Chakiarkoothu. This form is believed to have been introduced to Kerala by the early Aryan immigrants and is performed only by the members of the Chakiar caste. A highly orthodox type of entertainment, it can be strictly staged inside temples and witnessed by the Hindus of the higher castes. The theatre is known as Koothambalam. The story is recited in a quasi-dramatic style with emphasis on eloquent declarations with appropriately suggestive facial expressions and hand gestures The only accompaniments are the cymbals and the drum known as the mizhavu, made of copper with a narrow mouth on which is stretched a piece of parchment.

Folk Dances of India vary according to the region and have no specific grammar. They fit in with the scheme of festivals in each region.

Kathak. It has its root in Katha — story. A band of story tellers who were attached to temples in North India, narrated stories from epics. Later, they added mime and gesture to their recitation. The next stage in its evolution came in the 15th and 16th centuries A.D. with the popularisation of the Radha-Krishna legend. With the advent of the Muslim rule, it was taken out from the temples to the courts. Jaipur, Lucknow and Benaras became the centres. While Jaipur gave predominance to pure dance with emphasis on rhythm, the Lucknow one drifted into erotics.

Benaras also stuck to pure dance but provided for the sensuous aspect by delineating episodes from the Radha-Krishna legen The patron king of the Lucknow style w Wajid Ali Shah who spent extravagantly on a The place of women in Kathak was of different order. They were known as nac walis who adorned the courts of the Mughal Apart from this, they were used for entertai ment of the pleasure seeking rulers and the fawning toadies. Eventually they came to b categorised as women of easy virtue. Th Kathak dance goes through a regular form mostly concentrating on rhythm, various called Tatkar, Paltas, Thoras, Amad and Paran

Binda Din Maharaj, Kalkadin, Aachan Maha aj, Gopi Krishna and Birju Maharaj are but few maestros in this line.

Kathakali is the most refined, the mo scientific and elaborately defined dance for of Kerala. As it is obtained today it is not mor than 300 years old, but its roots can be trace back farther past. It is a very exciting art form demanding not only complete control o practically every fibre of the artiste's body, bu also intense sensitivity of emotion.

Kathak, which has roots in Katha, evolved out of the popularisation of Radha-Krishna legend. Jaipur, Lucknow and Benaras became centres of its practice. From dance it changed to rhythm and erotics.

The stories for *attakathas* (the verse text fo a kathakali piece) are selected from epics an mythologies and are written in a highl sanskritised verse form in Malayalam. Th actor does not speak, but expresses himsel through highly complicated and scientifically ordained *mudras* and steps, closely following the text being sung from the background o the stage.

The domain of kathakali is peopled b superhumans, gods and demons, and animal who are presented in a larger than life format What strikes the spectator first and most is th splendour of the costumes, ornaments, an facial make-up which transform the actor dancer into a type rather than a character A character can be iden colour it sports. A green-painted for nobility, honour, valour and

qualities.

Mythological heroes like the Pandavas, King Nala and divine personages like Krishna and Indra wear this make-up. In characters who wear the *katti* make-up, the green on the face is broken by a red patch resembling an upward twirling moustache. This make-up is symbolic of high-born anti-heroes, who are demonic but worthy foes to the heroes. Examples are characters like Duryodhana, Ravana and so on.

Another character classification called *tadi* (beard) includes wearers of red, white and black beards — red worn by vicious and savage villains like Dussasana, Bakasura and so on, white by the pious giant monkey Hanuman, and black worn by aboriginal hunters and forest dwellers. The category called *kari* (black) has characters whose faces are painted in lamp black, mostly ogresses like Shurpanakha and Hidimba. In complete contrast is *minukku*, in which the face is painted in delicate flesh tones with yellow and red powder. They are the noble women, queens, princesses, mostly heroines like Damayanti, Sita and others.

The vocabulary for the performer is only *hastamudras* (stylised hand gestures), facial gestures and *nritta*. Together with the exotic quality of the spectacle and the intricate *abhinaya* system and the rhetorical text rendered in classical style to the accompaniment of drums, a kathakali performance transports a spectator to an unworldly atmosphere peopled by gods, demons and other superhumans.

It takes years for a novice to graduate into an actor. Seven years of full-time practice under a meticulous teacher is the minimum called for. But to make an accomplished actor able to portray versatility, it takes many more.

Kathakali had its origins in the courts of the kings of Kerala. It is considered to be a highly synthetic art form, combining in itself the rudiments of its earlier forms like Krishnanattam and Ramanattam plus a highly scientific dance drama form. It is not folk, but highly classical, though not very old.

Most of the attakathas were written in the last century, but new attakathas are also appearing, though the standards are still kept undisturbed. There is plenty of innovation going on, yet all within the framework of the basic format. One of the noteworthy innova-

Chitra Viswesaran, exponent o
'Bharata Natya'

tions was *rendering* Goethe's German classic *Faust* into an attakatha.

Poet Vallathol can be said to be the fountain-head of all inspiration in regard to today's kathakali. He authored many a script. 'Kerala Kalamandalam' at Cheruthuruthy on the bank of Bharatapuzha is the premier insitution in this regard.

Koodiyattam. This is always a long drawn out affair and may take anywhere from a few days to a number of weeks. It is both entertainment and edification. The Vidhushaka rules the roost. He moralises and his armoury — satire and inneundo — has some times no relevance to the theme of the play.

Krishnanattam. It is intended for presentation on eight successive nights to unfold the entire story of Lord Krishna; the style is almost akin to Kathakali.

Kuchipudi. It is the dance drama of Andhra Pradesh. It is the corresponding style of the Bhagavata Mela Nataka of Tamil Nadu. Except that the emphasis is on the animation, the grammar is derived from the Natya Shastra and in all other aspects it is akin to Bharata Natyam.

Tirtha Narayana and Siddendra Yogi evolved this style. Kuchelapuram in Andhra Pradesh was the originating centre for this style. Hence the name Kuchipudi. It was a male prerogative. In recent years women have taken to it but it is mostly solo dance that they perform. To this extent the concept has been watered down. Like Kathakali it used to be a week-long affair. Vedantham Satyanarayana is the doyen of this style and he has carved out a niche for himself in portraying the role of the haughty, beautiful and vain-glorious Satyabhama. Vembhati China-Satyam, however, is the most popular guru today.

Manipuri. From the 15th to the 18th centuries, Vaishnavism came to be adopted in Manipur and this ushered a new era in the development of this style. For Manipuris, dance has been so inextricably woven into their pattern of life. The dance form is mostly ritualistic It has still preserved the dance drama technique which draws heavily from the rich lore of legend and mythology. Costumes are colourful and the music has a quaint old-world charm. The numbers presented are Lai Haraoba and Rasa Leela. The former deals with the creation of the world and the latter is on Krishna Leela.

Drums play an important part and the Poonang Cholom item is a must in any performance. The Kartar Cholom danced with cymbals is another exciting item.

Mohiniyattam is also the heir of Devadasi dance heritage like Bharatanatyam, Kuchipudi, Odissi. The word 'Mohini' literally means a maiden who exerts desire or steals the heart of the onlooker. There is the well-known story of Lord Vishnu takingon the guise of a 'Mohini' to enthral people, both in connection with the churning of the milk-ocean and with the episode of the slaying of Bhasmasura. Thus it is thought that Vaishnava devotees gave the name of Mohiniyattam to this dance form.

In format, this is similar to Bharatanatyam.

For Manipuris, dance has been inextricably woven into their pattern of life. The dance form is mostly ritualistic. Its dance-drama technique draws heavily from the rich lore of legend and mythology.

The movements are graceful like Odissi and the costumes sober and attractive. It is essentially a solo dance.

The first reference to Mohiniyattam is found in 'Vyavaharamala', composed by Mazhamangalam Narayanan Nambudiri, assigned to the 16th century A.D.

In the 19th century Swathi Tirunal, the king of erstwhile Travancore, did much to encourage and stabilize this art-form. It was Poet Vallathol who again revived it and gave it a status in modern times through Kerala Kalamandalam, which he founded in 1930. Kalamandalam Kalyanianma, the first dance teacher of Kalamandalam, was instrumental in resuscitating this ancient art form It is slowly trying to acquire an identity and classical status

Odissi This is also based on the Natya Shastra and the earliest evidence, we have of the existence of the art of dance is during the 2nd century B.C. when King Karavela ruled. Himself an ex-

and musician; he arranged a performance of Thandava and Adhinaya.

In the early 17th century, a class of boys known as Gotipuas, came into being. They dressed as dancing girls and danced in the temples. Grace is its uniqueness and the most important elements are the Bhangis and Karanas. The Bhangis are the basis poses and the Karanas the basic dance-units.

The format consists of Bhumi Pranam, Batu, Pallavi and lighter items like the Ashtapadi ending in moksha approximating to the Thillana of the South. It has gained great popularity today and it is so to the credit of Smt. Samyukta Panigrahi to have made it acquire universal appreciation. Today Kelucharan Mahapatra has become a name to reckon with as a pre-eminent guru.

Ottan Thullal. It is performed solo because of its ready mass appeal, it is known as the poor man's Kathakali. K Nambiar evolved it and brought out the conditions of his time, the distinctions of and the weaknesses and whims of the ric the great. The dialogue is in simple Mala and therefore ensures mass appeal.

Yaksha Gana. This belongs to Karnatak has a rural origin. It is an admixture of and drama. Its heart lies in 'Gana' me music. It is about 400 years old. The lan is Kannada and the themes are base Hindu epics. The costumes are almost al the Kathakali ones and the style seems to drawn inspiration from Kathakali. As scribed in the Natya Shastra, it has the S Dhara (conductor) and the Vidhushaka jester).

INDIAN PAINTING, SCULPTURE

Despite great gaps in our knowledge of continuities in history, the story of Indian painting has to begin with the art of primitive man which has survived in rock shelters and caves in places like Hoshangabad, Mirzapur, Bhimbetka.

Stone Age paintings belonging to the Magdalenian phase (15000 B C) have been discovered elsewhere The chances are that the beings in India do not go that far back But it is accepted that the primitive intellect and vision can survive for long when communities are isolated. Thus these paintings share the vivid realism of primitive art that has been discovered in many places like Altamira in Spain and Lascaux in France The silhouette effect creates a dramatic shadow-play of scenes of hunt, the open mouth of the wounded boar expresses all its pain.

The epoch of the Indus Valley Civilization (3000 B.C. — 1500 B C.) was one of elegant urban culture, but since the superstructures have not survived, no murals have come down to us. But in the case of the Aegean culture of ancient Crete we find close similarity between mural painting and the painting on pottery The Indus epoch also may have had extensive mural painting, for the painting on the pottery that has come down to us in abundance shows maturity and range, from vigorous realism through rhythmic stylization to strikingly expressive abstraction.

The earliest paintings of Ajanta may back to the first century B.C. and the late the eighth century. The spirit of the com sionate Buddha is their inspiration.

Perhaps Hinayana or early Buddhism not understand that spirit correctly, f remembered only the transience of things pervasiveness of pain. But, though Siddh had wanted to take his infant son with when he left the palace, he could not bea the mother's hand lay protectingly over child even in her sleep. He remembered after his enlightenment and told all to hav same kind of protective regard for every l thing He rejected Nirvana for himself and born again and again to help humanity travails, not only in many human roles, bu deer, an elephant, a swan.

The Jataka tales elaborated the vicissi of these incarnations and the Ajantan painted them in sinuous line and sen colour City, countryside and forest, men women of every type, fauna and flora, a mentioned in these murals.

Since the brush and the chisel accompa the message of peace when Buddhism ated to the rest of Asia, Ajanta becam fountainhead of Asian painting and m

With the clear stamp of its style. This can be seen in Sigiriya in Sri Lanka, Bamiyan in Afganistan , in many places along the old silk route in China, in Korea and in Horiyuji in Japan.

In India itself the mural tradition continued, though with less momentum, in Chalukyan Badami (sixth century), Pallava Panamalai (seventh century), Pandyan Sittannavasal (ninth century), Chola Tanjore (twelfth century), Lepakshi of Vijayanagar (sixteenth century) and the murals of Kerala of various dates reaching to the middle of the nineteenth century.

Meanwhile, painting had come down from the extended mural surface to the miniature dimensions of the manuscript, originally on palm-leaf, later on paper. The miniatures of Pala period Bengal (tenth and eleventh centuries) conserve the sensuous line of Ajanta. But there is a rapid decline now and the line becomes brittle and angular.

It is this style that spread to western India and is seen in numerous illuminated manuscripts, the bulk of them being Jain texts, of the [illegible] from the twelfth to the fifteenth century.

But a wind of change begins to blow during the latter half of the fifteenth century and the first quarter of the sixteenth.

In response to the lyricism of poems like the *Vasanta Vilasa* (Dalliance in Spring), Bilhana's *Chaura Panchasika* (Fifty Stanzas on Stolen Love) and *Laur-Chanda* (the Romance of Lorik and Chanda), line again becomes supple, colour lustrous. The Indian miniature stabilizes a fine pictorial style even before the advent of the Moghuls.

Though the imperial court of Akbar was headed by artists from Persia, Moghul painting is not a provincial school of Persian painting. The latter retreats into a paradisiacal world of romance, while Akbar is interested in contemporaneity, in history in the making. The organization of the studio and its working also brought about a rapid indigenisation of the alien idiom.

Akbar recruited a very large number of Indian artists. Each painting was most often a co-operative effort of Indian and Persian artists, one man doing the drawing, another the colouring, a third the details. The indigenisation received further momentum when Akbar commissioned the translation and illustration of Indian texts like the *Ramayana* and the *Mahabharata*.

It is mostly artists trained in the Moghul atelier who became the court painters of the Rajput princes. But while Moghul painting was elitist, reflecting imperial pomp and circumstance, Rajput painting presented in line and colour the great myths and legends of the land, the story of Rama, of Krishna, of the *Bhagavata* and the *Gita Govinda*. Of the many states in the plains or Rajasthan, two need special mention.

The style of Kotah painting anticipates by nearly eighty years the primitive vision and virility of European fauvists like Douanier Rousseau. That of Kishangarh painting manages the perfect *pictorialisation of the poetry* of the Radah-Krishna story.

Mughul painting was elitist reflecting imperial form and circumstances. Rajput painting presented in line and colour the great myths and legends of the story of Rama, of Krisha and of the 'Bhagavata'.

In the small principalities of the Himalayan valleys set up by intrepid Rajput warriors from the plains, many centres came up of which Basohli is unique for its intensity of expression, Kulu for its closeness to the folk style and Kangra for both its romanticism and large output.

A decline followed the close of the Rajput phase. With the strong presence of the west in the British era, western academism became popular, mostly self-taught in the case of a pioneer like Ravi Varma, through institutional training in the case of others. The revivalist school, headed by Abanindranath Tagore, was nationalist in inspiration, but its pictorial achievement was weak and sentimental.

The four pioneers of modern painting in India are Gaganendranath Tagore who tried out every technique and style, Amrita Shergil who integrated the pictorial idiom of the west and an Indian vision, Jamini Roy who discovered the virility of the folk tradition and modulated it in many ways and Rabindranath

Tagore who demanded for paintings music's autonomy and independence from factuality and thus gave a charter for free variations on naturalism, abstraction and expressionism.

SCULPTURE

The story of Indian sculpture begins with the epoch of the Indus Valley Civilization and it is already a startlingly mature achievement. The figurine of the dancing girl that has come down to us testifies to good knowledge of bronze casting, indicates the fascination of the feminine figure that will endure throughout, points to the close relation between sculpture and dance in the Indian tradition.

Terracotta is the medium for objects used in ritual like mother goddess figurines as well as for recreation like toys of a great variety. Despite their small size stone sculpture achieves monumentalism and animals like bulls represented in the small steatite seals have a vibrant realism.

The Satavahanas (second century B.C. to second century A.D.) further developed these traditions. The dryads of Sanchi are the most lissome representations of the type. Narrative sculpture at Amaravati brilliantly solved the problem of composition in awkward shapes like that of the medallion.

In the north-west regions now no longer in India, in the Indo-Greek kingdoms that emerged in the wake of the invasion under Alexander, the plastic vision of ancient Europe combined with Buddhist spirituality to create the art of Gandhara. This region became part of the vast Kushan empire of Kanishka (second century A.D.) which stretched from the Oxus to the Ganges. But the Kushans mostly resided at Mathura and the art of this epoch was in the main a prolongation of the earlier traditions.

However, it was an age of highly urbanised and relaxed mores and the Yakshi figure loses its links with the woods, becomes a self-consciously seductive damsel of the city. Scenes of revelry with the wine flowing freely

Terracotta is the medium for objects used in rituals like mother goddess figurines as well as for recreation like toys of a great variety. Despite their small size, stone sculpture achieves monumentalism.

The dispersal of Persian craftsmen when the Achaemenid empire was overrun by the Greeks in the fourth century B.C. may have contributed to the monumental stylization of the figure of the lions in the Asokan pillar that has been adopted as India's national emblem. But the Mauryan age also evolved a gentler style in the bull of the Rampurva pillar and the sympathetic treatment of animals continues throughout in Indian sculpture. The Yakshas and the Yakshis (spirits of hills and trees) are at first rather rigid figures but the feminine figure soon becomes sensuously refined, even though remaining ample, in the Didarganj Yakshi.

The Sungas who replaced the Mauryas in the second century B.C. further refined the Yakshi figure with elaborately carved costume and jewellery, linked tree and woman through the nexus of fertility which symbolism was poetically brought out in the compositions and developed the skill for fluent narration in running friezes of low-relief or deep-relief sculpture.

are represented in sculpture. Feminine apparel begins its fine adventure of ambivalence, revealing while pretending to conceal for the Mathura nymph wears so transparent a fabric that she appears nude.

The age of the imperial Guptas (300-600) achieved the classic stabilization of the icon of the Buddha, represented as seated or standing, and with various symbolic gestures of the hands. The circular medallion that had decorated the railings in Sungan and Kushan times evolves here to the splendid aureole or halo of the Buddha. The transparent apparel of the Kushan epoch falls here in fine folds that trace flowing rhythmic patterns all over the figure. The visage with its delicacy of moulding achieves a rapt serenity of expression, a quality of inward musing, realised never before.

The Gupta creation of the classical icon of the Buddha is a landmark in the art of Asia for, like the Padmapani of Ajanta, it radiated to many lands. This age also created magnificent sculpture on Hindu themes like the incarnations of Vishnu in the late fifth c[illegible] temple

of Deogarh and the powerful representation of the boar (Varsha) incarnation salvaging the earth, hewn from the rock at Udayagiri.

The Vakatakas of the Deccan were the contemporaries of the Guptas and under their patronage fine sculpture came up in abundance, mostly Buddhist at Ajanta, Hindu at Ellora. The achievement has great range, from the lightness of flying figures and the elegant rhythmic balance of dancing groups such as the one at Aurangabad to the majesty and wealth of symbolic meaning of the figure Mahesa at Elephanta.

The Western Chalukyas continued these trends, creating floating figures and dancing Sivas at Badami, Aihole and Pattadakkal. The Eastern Chalukyas also created some fine sculptures of dance in the temples of Vijayawada region.

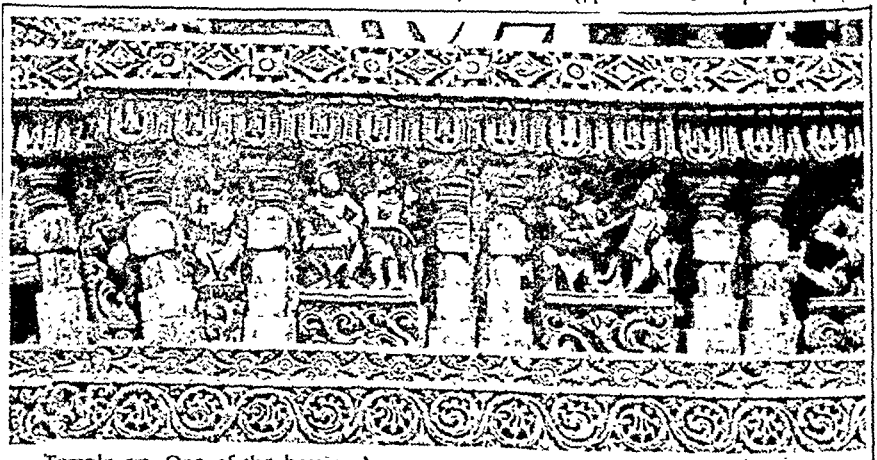
In the eighth century, the Rashtrakutas carved a whole hill of rock at Ellora to simulate a structural temple and peopled it with sculpture on the exploits of Siva which share the turbulent power of their unique architectural achievement. The Gujara-Pratiharas who were their contemporaries evolved a less turbulent though still monumental style in such creations as the cosmic form of Vishnu, created poetically sensitive sculptures like the one showing the wedding of Siva and Parvati and contributed one of the loveliest dryads in the Indian tradition.

The Gahadvalas continued this tradition and the twelfth-century head from Rajorgarh is probably the best Indian sculpture for the most elegant representation of feminine coiffure. This trend of exquisite feminine figuration climaxed in the epoch of the Chandellas (tenth to twelfth centuries). The eroticism of Khajuraho sculptures has unfortunately attracted undue attention all over the world.

But far more sensitive in modelling and poetic in sensibility are the representations of woman in her various moods of longing, expectation, reverie. Eroticism is found in the sculptures of Konarak and Bhuvaneshwar of the epoch of the Eastern Gangas (thirteenth century) too. But here again the poetic and romantic figurations of women are more sensitive.

Moving further south, the great achievement of the Pallavas (eighth century) was the gigantic tableau at Mahabalipuram, where a whole rock-face has been carved into a representation of the descent of the Ganges and the teeming animal and human life on its banks. There are some exceptionally fine and deeply sympathetic studies of animal life here.

Siva is the towering figure in Chola sculpture (eleventh and twelfth centuries) in stone too besides bronze. But it is the work in bronze, especially the Nataraja or dancing Siva, that has become world famous, and deservedly so. Matching profound concept with perfect



Temple art: One of the best sculptures seen in India. (Hoysala temple, Mysore)

astic form, this great iconic creation sees the cessant change of the world, the gyration of e electron as well as the galaxy, as ordered ocess, assures man that it is a benign order.

Under the Hoysalas (twelfth century) the rnataka region created a sculpture where e soft chloristic schist used tempted rather cessive detail and ornamentation. In the teenth century, Vijayanagar favoured a ulpture that reflected imperial pomp in ephant processions, cavalcades, marching ldiery.

Stone sculpture influenced by the Pallava tradition and bronzes influenced by the style were produced in Kerala, but its u achievement is in sculpture in wood.

Exposed to stimuli from all over the w Indian sculptors today are experimentin all styles, using new materials like steel aluminium, fibreglass and even fibre. But most significant trend seems to be the which seeks to recover the iconic quality, power to stir the impulses of awe a adoration which are humanistically the m valuable strains of the Indian sculptu heredity.

LANDMARKS OF HISTORY

The first wave of Aryan immigration into dia began in 1500 B.C. They settled in the njab. Composition of the *Rig Veda* was the gh watermark of the Vedic Age.

B.C. 1000: Aryans expand into the valley of e Ganga: Composition of the *Brahmanas.* **)0:** Mahabharata War. **800:** Aryans penetrate to Bengal: Composition of the *Mahabharata:* rst version of *Ramayana:* Beginning of the ic Age. **550:** Composition of the *Upnishads.*

544 (?): Traditional Date of Buddha's Nirva-. **527 (?):** Accession of Darius I in Persia. **18:** Darius sends Scylax on a naval expedi-on down the Indus: Persian conquest of orth west India: Formation of a Persian trapy in India. **500:** Aryans in the South and eylon. **326:** Alexander invades India. 323 eath of Alexander.

321: Chandragupta unseats the Nanda nasty in Pataliputra and founds the Maurya nasty. Kautilya, the Chief Minister of Chan-agupta, writes *Arthasastra* (Science of Gov-nment). **272-232:** Reign of Asoka. **185:** ishyamitra, the Mauryan General overthrows e last Mauryan Emperor Brihadratha and ounds the Sanga dynasty.

145: Chola king Erata conquers Ceylon. haravela builds up an empire in Kalinga. **58:** he Krita-Malava-Vikrama era. **30:** Satavahana ynasty in the Deccan. Pandyan Empire in the r South. **26:** A Pandyan king sends an nbassador to Rome. Chera kings in Kerala.

A.D. 40: The Sakas or Scythians in power in e Indus Valley and Western India. **52:** rthian King Gondophames in North West India. St. Thomas begins preaching in Indi **78:** Saka Era begins. **98-117:** Kanishka, th Scythian King. **320:** Chandragupta I establishes the Gupta dynasty—Gupta Era begins. **360:** Samudra Gupta conquers the whole of north-ern India and much of the Deccan.

380-413: Chandragupta Vikramaditya-The Golden Age of the Gupta-Literary Renaissance-Kalidasa and other poets. Renewal of Hindu-ism. **606:** Accession of Harsha Vardhana. **609:** Rise of the Chalukyas. **622:** Era of the Hejira begins. **711:** Invasion of Sind by Muhammad Bin Kassim. **753:** Rise of the Rashtrakuta Empire. **892:** Rise of the Eastern Chalukyas. **985:** The Chola Dynasty—Rajaraja the Great.

1026: Sack of Somnath by Mahmud of Ghazni. **1191:** Prithvi Raj Chauhan, King of Delhi, routs Muhammad Ghori—the first bat-tle of Tarain. **1192:** Muhammad Ghori defeats Prithvi Raj—second battle of Tarain. **1206:** Qutbuddin Aybek establishes the Slave dynasty at Delhi. **1221:** Mongol invasion under Gen-ghis Khan. **1232:** Foundation of the Qutub Minar.

1298: Marco Polo visits India **1290:** Jalalu-din Firuz Khilji establishes the Khilji dynasty at Delhi. **1320:** Ghiyasuddin Tughluk founds the Tughluk dynasty at Delhi. **1333:** Ibn Batutah arrives in India. **1336:** Founding of Vijayanagar (Deccan). **1398:** Timur invades India. **1424:** Rise of the Bahmani dynasty (Deccan). **1451:** The Lodi dynasty-Bahlul Lodi ascends the throne of Delhi. **1489:** Adil Shah dynasty at Bijapur. **1490:** Nizam Shahi dynasty at Ahmad-nagar.

1498: Vasco da Gama lands **1510:**

Indian Shoe's Big Leap

Ajit Kumar Sen, a senior Indian official, says that in the 1950s, when India began its first exports of shoes to the Soviet Union, neither side insisted on high standards of workmanship.

"In fact, I remember the Russians said they didn't mind if we put cement in the toecap of the shoe to stiffen it," said Mr. Sen, who is an executive director of the government-run State Trading Corp., India's largest trading company.

The Indians, he said with a smile, did precisely that, for "a decade, I think, and they didn't bother them at all."

These days, Indian shoemakers are becoming increasingly attractive to large Western footwear and leather companies with higher standards of quality. Several big Western companies are here to set up working agreements and take advantage of low-cost labour and low overhead.

Although the Soviet Union remains the country's biggest purchaser of leather products, Indian manufacturers have expanded their sales, with nearly half the total exports going to the United States, Britain, Portugal, Italy and other Western countries. The other half remains solidly with the Communist bloc.

From $230 million worth of leather exports in 1981, the figure soared to nearly $700 million in 1986, representing one of the fastest-growing businesses in the nation.

The surge in sales abroad followed a series of steps by the government to cut import procedures and customes duties as well as offer cash incentives for shoe uppers and completed shoes. Leather manufacturers say that a ban on the export of raw hides and skins has also helped the growth of the domestic industry.

Another factor is a decision to allow large enterprises to enter the leather market, an area that was once exclusively the domain of small and medium-size manufacturers.

Industrialists say that the decline of the leather industry in the West, caused by pollution problems, high labour costs and running expenses, will help developing countries like India win a bigger share of the international market.

This trend was also helped, according to trade officials, by Brazil's brief withdrawal from the world leather market in the early 1980s as it wrestled with domestic economic problems. Those were the years that Indian leather exports began to boom. More than 100 leather companies have sprung up in and around New Delhi in the past five years. (New York Times)

Defence of India Act **1918:** World War ends. **1919:** Rowlatt Act intended to perpetuate the extraordinary powers enjoyed by the Government during the war provokes country-wide protests. The massacre at Jalianwallablag. Ali brothers and Maulana Abul Kalam Azad start the Khilafat movement (for restoring the Turkish Khalifate) with Gandhiji's support. Perfect Hindu-Muslim accord. Montague-Chelmsford Reforms offer limited provincial autonomy to Indians.

1920: Congress okays non-cooperation movement. Students leave colleges, lawyers leave practice. Bonfire of British clothes, etc. to show popular dissatisfaction with the reforms. **1921:** Moplah (Mulsim) rebellion in Malabar. Visit of the Prince of Wales. Nationwide hartal. Census of India.

1922: Civil Disobedience Movement. Congress makes Gandhiji sole leader of Bardoli satyagraha. Outburst of violence at Chauri Chaura. Gandhijiji suspends movement on this account.

1923: Swarajya party started by C. R. Das and Motilal Nehru. Swarajists propose to enter the Councils and wreck the government from within. Khilafat movement fizzles out as Kemal Pasha declares Turkey a secular state. Hindu-Muslim riots. **1925:** Death of C. R. Das. **1926:** Lord Reading expounds to the Nizam what paramountcy implies. Royal Commission on Agriculture. Factories Act. **1927:** Indian Navy

Act. Simon Commission appointed. **1928:** Simon Commission comes to India. Boycott by all parties. All Parties' Conference. Muslim leaders leave the Conference.

1929: Lord Irwin, Viceroy of India, promises Dominion Status for India. Lahore Session of the Congress asks for independence. On the midnight of Dec. 31, Pandit Jawaharlal Nehru, President of the Congress, hoists the National Flag at Lahore.

1930: Jan. 26 observed as Independence Day all over India. Civil Disobedience Movement continues. Gandhiji goes walking to Dandi—Salt Satyagraha. Repression let loose by the government. First Round Table Conference.

1931: Gandhi-Irwin Pact. Second Round Table Conference. Census of India. **1932:** Suppression of Congress movement. Third Round Table Conference. The Communal Award. Poona Pact. **1933:** White Paper on Indian reforms. **1934:** Civil Disobedience Movement called off. **1935:** Government of India Act.

1936: Death of King George V. Accession and abdication of Edward VIII, Accession of George VI. **1937:** Inauguration of Provincial Autonomy. Congress Ministries formed in a majority of the provinces.

1938: Second World War begins. Also Resignation of Congress Ministries. Political deadlock in India. **1941:** Japan enters the war. Attack on Pearl Harbour.

1942: Singapore falls to Japan. Japan occupies Rangoon. The British evacuate Burma. Cripps Mission to India. Both Congress and Muslim League refuse Cripps offer. Congress adopts Quit India Resolution (Aug. 8). Congress leaders arrested and Congress declared an illegal body (Aug. 9). Subhash Chandra Bose (Netaji) forms the Indian National Army in Malaya, with the help of the Japanese. He inaugurates the Government of Free India at Singapore.

1943: Lord Wavell Viceroy and Governor General of India. Wavell's proposals for a settlement fall through as the Congress and the Muslim League could not agree. **1945:** The Indian National Army under Bose surrenders to the British after collapse of Japan. National Army personnel tried for treason in India.

1946: Demonetisation of currency notes of the value of Rs. 500 and above (Jan. 12). Demonstrations against the trial of the INA men. The ratings of the Royal Indian Navy rise in open mutiny (Feb. 18). Cabinet Mission in India (Aug. 19). Cabinet Mission announces a plan for an interim government and a constituent assembly. The interim government is to be formed by reconstituting Viceroy's Executive Council. Both Congress and the Muslim League reject the proposal. Later the Congress accepts it. So the interim government is formed by inducting Congress nominees only. The Muslim League takes umbrage and starts direct action. Muslims attack Hindus in Calcutta and the rest of Bengal. Hindus retaliate. Riots break out. Viceroy persuades the Muslim League to come in. But the League declines to join the Constituent Assembly unless the demand for a separate state—Pakistan—is conceded.

THE NATIONAL MOVEMENT

The National Movement or the movement for independence was a part of a larger spectrum of national resurgence, which covered almost all aspects of national life, religious, social, educational, cultural and economic.

While the progress in the different spheres differed in degree and in kind from region to region, one common desire animated all regions, namely, gaining independence. How the British administration tackled this problem and how it finally ended in the partition of India and the formation of two independent states, India and Pakistan, is too long a story to be recounted in a few pages.*

When Lord Dalhousie laid down his office in 1856 and Canning took over as Governor General the British Empire in India had extended to its natural boundaries—from Indus in the west to Irrawady (Burma) in the east and from the Himalayas in the north to Cape Comorin (Kanyakumari) in the far south. The British Indian dominion was

* All unacknowledged quotations in the Section are from Tara Chand, *History of the Freedom Movement in India*, Vols I-IV

made up of two distinct political segments—territories directly administered by the East India Company and those ruled by Indian princes who owed fealty to the company. For the first time in many years, peace seemed to have settled all over India

But those who knew the antecedents leading to the establishment of *Pax Britannica* in India were skeptical of the apparent peace. The pacifist Lord Canning who succeeded the aggressive Lord Dalhousie as Governor General felt that the calm was ominous.

Replying to the toast at the farewell dinner given in his honour by the Directors of the East India Company in London, Canning said, "we must not forget that in the sky of India, serene as it is, a small cloud may arise, at first no bigger than a man's hand, but which growing larger and larger, may at last threaten to burst and overwhelm us with ruin". Never was prophecy more quickly fulfilled or so grimly. In the summer of 1857 the massed clouds burst and the entire British dominion in India shook to its foundations.

This was the revolt of 1857, which the British historians have dubbed the *Sepoy Mutiny* and the Indian historians, the *First War of Independence*. True, it began as a mutiny of Indian soldiers against their British commanders. But it soon changed its character and became a fight against British rule as such.

Indian soldiers had broken out in open mutiny against British officers many times previously—in 1806 at Vellore (Madras), in 1842 in Bengal, in 1844 in Sind, then in Bihar and Punjab. None of these had any political overtones. But the so-called Mutiny of 1857 differed radically in this respect.

All the previous mutinies had been put down mercilessly and the suspected ring leaders subjected to gruesome punishments, without proper investigation or trial. These helped only to feed the fires of discontent.

Meantime, other factors were building up political bonfires in different parts in India. Lord Dalhousie's *Doctrine of Lapse*, under which no prince was allowed to adopt an heir without the previous permission of the British rulers, extinguished many princely kingdoms in India. At the same time, the British Administration also started interfering in the internal administration of Indian States. Th policy further inflamed the princely ar aristocratic classes in India.

The two elements—military ar political—coalesced in the revolt of 1857. Th Indian soldiers having massacred the Briti personnel, marched to Delhi in May, 185 They proclaimed the aged Mughal Empe Bahadur Shah II as the Emperor of Ind Bahadur Shah promptly issued a proclam tion urging upon the people India—Hindus and Muslims alike—"to e the tyranny and the oppression of the infid and treacherous English".

Despite the attempts of British writers play down the events of 1857 as an arr affair, the British Prime Minister, speaking the House of Commons on July 27, 185 frankly admitted that the outbreak of 18 was not just a military mutiny but a politic revolt.

It is not quite correct to describe the rev of 1857 as a national revolt. For, at that tim India had not yet become a nation. The rev itself was the last kick of a dying feudal ord led by a decadent aristocracy. "The idea o nation and therefore of nationality was bequest of English education".

There is little doubt that the knowledge English acquired by Indians in every part the country facilitated inter-communicati and expedited the process of national tegration. The Indian middle class, steeped English literature and history, gorged the selves with the ideas of *liberty, equality* a *fraternity* which the American War of Ind pendence (1773–1787) and the French R volution (1789) had glorified.

The immediate results of the 1857 rev were three: 1. The administration of Briti India, until then under the control of t Board of Directors of the East India Co pany, was taken over by the British Gove ment. Queen Victoria was proclaimed Empress of India and the Governor Gene was designated the Viceroy and Govern General.

2. The British Indian army was re-or nised. The quota of British personnel in army was considerably enhanced and artillery divisions were manned entirely the British. In addition, many purely Brit regiments were formed. 3. The paramoun of the British Government was proclaim

that is to say, all ruling kings and titular princes of India were declared feudatories of the British Crown. This proclamation raised many eyebrows among Indian princes, but there was little, they could do in the matter.

After all, unlike Dalhousie's Doctrine of Lapse, this declaration was merely the *due jure* expression of an authority, already functioning *de facto*. In later years, the Nizam of Hyderabad, the doyen of the Indian princes, tried to rake up the question with Lord Reading, the Viceroy. The Nizam's protest was silenced by the cryptic reply of Reading— "Paramountcy is paramount".

The take-over of the Indian Government by the British Government did not eliminate discontent, and tiffs with the white rulers continued to disturb the peace. The indigo riots of Bengal in 1859 were the first of such troubles. They were put down but subsequent investigations showed that it was the white planters who provoked the riots and the poor Indian peasants who suffered were innocent in the matter.

With the indigo riots, the agitation for freedom acquired greater momentum. Meanwhile the spread of English education brought into being a new generation imbued with liberal ideas and willing to fight a long drawn battle with the British for independence. At the same-time, a vernacular *Fourth Estate* was slowly taking shape. Up till now, all periodicals were in English and were controlled by Englishmen.

The English Press naturally supported British policies. So it became necessary to publish vernacular periodicals to express Indian aspirations. This resulted in the promulgation of the *Vernacular Press Act of 1878*. This was a discriminatory legislation intended to muzzle the periodicals in Indian languages. The reason advanced by Lord Lytton, the Viceroy, was that "the increasing violence of the native press now (was) directly provocative of rebellion". The whole of India protested against the Act and appealed to the British government to repeal it. The act was at last repealed by Lord Ripon in 1882.

Lord Lytton as viceroy (1874–1880) fathered an offensive brood of laws and regulations. *The Arms Act* (which exempted Europeans) and the abolition of import duties on British goods were among the more obnoxious performances of Lytton.

Lord Ripon's viceroyalty, otherwise benign, was sullied by the infamous *Ilbert Bill*. This bill amended the Criminal Procedure Code and specified that only European judges could try European offenders for serious misdemeanours. This piece of legislation amply reflected the racial prejudices of the ruling class.

In 1883 a proposal was set afoot to remove this anomaly from the Criminal Procedure Code. The European Community in India rose as one man to oppose the change and they won. "The Bill was so modified as to give the European offenders the right of claiming even in the least cases, trial by jury, of which at least half the number should be Europeans or Americans."

In 1883 the agitation over the Ilbert Bill still continued. Surendranath Banerjee was arrested for an article he wrote in the *Bengali*. Soon arrests of other persons for seditious articles followed. This accumulation of discriminatory laws, arrests and prosecutions, roused the masses.

"It was felt that the time had come to make a determined effort to secure a real and effective control in the management of national affairs". This could only be achieved by a country-wide organization which would mobilize public opinion all over India and carry the agitation to the masses.

So a series of conferences were held to evolve a national organization. In 1853, a national conference met in Calcutta under the leadership of Surendranath Banerjee. In 1884 Banerjee undertook another tour through north India to rally various political groups together and to collect money for a national fund. Another conference was held in 1885 again in Calcutta—in which delegates from Bengal, Upper India and Bombay participated. The success of these conferences showed that a national organization was not only feasible but also inevitable.

Some Englishmen in India felt the same way. Henry Cotton and Allen Octavian Hume among them thought that an abiding concord between the government and the people had to be built up. Cotton wrote, "They (the educated Indians) tolerate the necessity of our government as an irrevocable necessity. They demand real, not nominal [illegible]ity, a

voice in the government of their own country and a career in Public service".

Hume went further. He formed the Indian National Union in 1854. The aim of the Union was "to oppose by all constitutional methods all authorities high and low here or in England, whose acts and omissions are opposed to the principles of the Government of India laid down by the British Parliament and endorsed by the British Sovereign".

100-YEAR-OLD CONGRESS

Indian National Congress completed one hundred years of its existence in 1985. Founded by A. O. Hume in association with various national leaders, it has stood the rest of time to emerge as one of the strongest political movements in the democratic world.

It was the Indian National Union formed by A.O. Hume that assumed the name Indian National Congress at the conference held in Bombay under the Presidentship of W.C. Banerjee, a veteran lawyer of Calcutta. It was attended by 72 delegates from all over India.

The birth of the Indian National Congress was an unprecedented phenomenon in the political history of India. It marked the entry on the new educated middle class into national politics. The middle class, a byeproduct of the British Raj, was mainly composed of three classes—agricultural, industrial and professional. Each class had its own interests but a growing sense of nationality—often extolled as patriotism—united them in a common programme of action.

These classes were not caste-bound nor tied down by traditional customs. Fed on revolutionary ideas born of the American War of Independence and the French Revolution, they soon separated themselves into two groups—the extremists and the moderates—the equivalents of modern *hawks and doves.*

From 1885 onwards the Indian National Congress met every year. Its influence spread rapidly among the middle classes. Three main topics engaged its attention: (1) representative government and expansion of the number and functions of legislative councils both in the provinces and at the centre, (2) Indianisation of higher services, (3) Indian poverty.

In 1886 the Congress resolution on Indian poverty read as follows: "That this Congress regards with the deepest sympathy and views with grave apprehension the increasing poverty of the vast numbers of the population of India and desires to record its firm conviction that the introduction of representative institution will prove one of the most important political steps towards the amelioration of the condition of the people".

In 1889 at the fifth congress meet, the protection of the minority communities under a representative government was specifically urged. The minorities included Parsis, Christians and Muslims—and Hindus when they were in a minority in any particular area. This resolution formed the seed-bed of communal representation which in later years loomed dangerously on the political horizon.

The criticism of the Congress-led educated classes regarding the indifference and imperviousness of the British administration to the welfare of the Indian masses naturally annoyed the government which began to indulge in repressive measures. This encouraged the extremists who became more popular and consequently more venturesome.

As the 19th century drew to a close—to be precise on December 30, 1898—Lord Curzon came down to India as Viceroy. "Curzon was a brilliant intellectual—scholar, writer, speaker—but he was inordinately ambitious, overwhelmingly vain, obstinate, heedless of advice, contemptuous of opposition, self-righteous, unscrupulous and moody..." (Tara Chand).

The crowning ambition of Curzon was to destroy the political influence of the educated middle class, among whom the Bengali intelligentsia were the most prominent. So his first attention was directed to Bengal. His secretariat pointed out that the province of Bengal as constituted at the time was unwieldy with an area of nearly 190,000 sq miles, a population of 78.5 million people and a gross revenue of over 1,140 lakh rupees.

There was no direct contact between the heads of the provincial government and the people of Bengal. What made the question of special interest to Curzon was the fact that "the influence of East Bengal in the politics of the

though a moderate himself, approved of aggressive agitation. There were, however, a good number of old timers including Gokhale who feared that aggressive tactics would lead to terrorism and that the national movement itself would get out of hand and become counter productive.

1905 also marked a radical change in the functioning of the Congress. So far, the Congress was merely a series of annual conferences at different places. From 1905 it started functioning as a permanent oganization, though annual elections often led to a change of working personnel.

In 1906 the police broke up a Congress conference in Barisol (Calcutta) The delegates were lathi-charged. Eminent leaders were man-handled by the police This unprecedented treatment meted out to a peaceful gathering led to a radical change in the character of the national movement.

Hereafter, force was to be met by force. The white man's blood was to atone for the innocent blood drawn from inoffensive nationalists. This was a victory for the extremists. A crop of revolutionary leaders emerged—Aswini Kumar Dutt, Brahma Bhandhab Upadhyaya, Aurobindo Ghosh, Lajpat Rai and Bal Gangadhara Tilak. Tilak was from Maharashtra, and easily led the others. In Bihar, Khaparde emerged as the leader and Rai led Punjab

Before terrorism was adopted as a general policy, isolated killings had taken place. Chaphekar brothers in Maharashtra had shot two British officers, Rand and Ayerst But from 1906 onwards regular terrorism broke out. In this Bengal, as usual, led. B K. Ghose, B.N. Dutt and B.B. Upadhyaya were the leaders behind the terrorist movement in Bengal. Aurobindo Ghosh, then in Baroda came down to Calcutta, to reinforce the movement.

The most important terrorist organization was *Anushilan Samithi* with its headquarters at Calcutta. In East Bengal, Dacca became the main centre. The Anushilan Samithi ostensibly an organization for promoting physical development and social welfare, soon found followers all over India. The growth of terrorist activity was deplorable but in the circumstances inevitable.

Originally the Swadeshi movement had affected only established cottage industries—particularly handloom textiles. Now bigger entrepreneurs came on the scene, establishing heavy industries. Similarly, the boycott of British goods continued on a greater scale than before. Bonfires of foreign goods were conducted on a large scale in all big cities.

The sales of textiles in eight districts of Bengal fell from Rs.77,000 in 1904 to Rs.10,000 in 1905 Twenty new cotton mills were started in Bombay and Ahmedabad. 15 new banks and 5 shipping companies were floated. Thus there was an overall increase of big industrial units in several spheres.

While everybody supported the Swadeshi movement many disapproved of the boycott programme and still more, the terrorist activities. Their main fear was that this would alienate British public sympathy for Indian aspirations and harden the hearts of the rulers.

The Congress ranks sought a via media by appealing to Dadabhai Naoroji, the grand old man of India to preside over the Calcutta session in 1907. Dadabhai tried his best to placate both parties and proposed a new common platform for both, namely *Swaraj* or self-rule as the goal of the National Congress.

Fuller, the Lt. Governor of the newly created East Bengal province, was a typical imperial bureaucrat. He exploited Hindu-Muslim differences of opinion to create faction. He openly supported the Muslim majority and discriminated heavily against the Hindu minority in the province. He let loose unbridled repression in East Bengal, humiliating and insulting respected Hindu leaders, ruthlessly punishing teachers and students and carefully discriminating between Hindus and Muslims at every turn.

Minto, the Viceroy, did not approve of Fuller's policy as it violated the spirit of the central policy. The Secretary of State Morley fully endorsed the Viceroy's view point. Fuller did not agree with the views of his superiors in the matter and offered to resign rather than fight them. Fuller vacated the scene.

But the seeds of distrust and suspicion between Hindus and Muslims which he had sown sprouted. Already, the Muslims were chagrined at the Hindu religious rituals like fasting and tying coloured thread (*Rakshi Bandhan*) which usually accompanied agitational programmes like boycott and picketing. The preferential treatment extended to Muslim government employees by Fuller at the expense of the Hindu employees made the

Muslims loyal supporters of the imperial regime. The sudden termination of Fuller's services embittered the Muslim community but they were soon reassured by the Viceroy that there was no change of government policy towards the Muslims.

The Muslims, in fact, formed a political organization, tentatively named *Muslim League*, which published anti-Hindu and pro-government pamphlets. A *Red Pamphlet*, very much in circulation, claimed that the government was on their (Muslims') side, that crimes against Hindus, that is, looting Hindu shops, abducting Hindu women, etc. would be overlooked by the authorities. Morley welcomed the formation of such a League, characterising it as a "native opposition" to the Congress. The policy of *divide et empera* had begun, in earnest.

"In an atmosphere made tense by propaganda and counter propaganda," says Tara Chand, "it is not surprising that clashes occurred. Rioting had begun in Mymensingh district in April and May 1906 causing panic among the Hindus".

"Communal riots on a bigger scale occurred in 1907 at Comilla in Triperah district and in Jamalpur taluk of Mymensingh district". In future these riots were to become almost a daily occurrence everywhere in British India.

Differences of opinion regarding attitudes and policies to be adopted in the National Movement came to a head in 1907 when the Congress met at Surat. The moderates (doves) in the Congress who included such statesmen as Gokhale, Phirozshah Mehta, Surendranath Banerjee and Madan Mohan Malaviya were against the extremist programme of action, lest it should strengthen the anti-Indian stance of the British public.

The extremists who also contained a galaxy of celebrities like Tilak, Aurobindo Ghosh, Bipin Chandra Pal and Lala Lajpat Rai had no faith in the bonafides of the British Indian government or in the goodwill of the pro-Indian section of the British public. Leaders of the extremist faction wanted to "capture the Congress and make it an instrument of revolutionary action".

The proceeding of the Surat session was marred by threats and counter threats. Utter lack of discipline characterized the session from the start. It ended just as ignominiously. The police had to interfere to close the meeting and to clear the pandal. The Congress had split.

The moderates retained control of the Congress. They met immediately after and drafted the new creed of the Congress.

Land Marks in 100 Years.

Ramsay Mac-Donald would have presided over the 26th session of the Indian National Congress in 1911 at Calcutta had not his wife died. He later became the Prime Minister of the United Kingdom.

* * *

Phirozshah Mehta, president-elect of the 24th session at Lahore in 1909, suddenly decided not to attend it following Lady Mehta's warning that Surat would be repeated.

The 1907 Surat session ended in chaos. Lokmanya Tilak faced an audience of fist-shaking 'moderates'.

He defied their threats only to have a shoe aimed at him which instead struck Surendranath Banerjee and canoned off Phirozshah Mehta. The rest was chaos, as delegates struck at anyone who looked like a moderate.

* * *

At the 22nd session at Calcutta in 1906 the party accepted the aim of "swaraj". Kadabhai, presiding over the session for the third time, introduced this expression.

However, it was Tilak who picked it up and made it into a movement for mass awakening.

* * *

Dadabhai died before the 32nd session at Calcutta in 1917. Tilak died three years later and his political opponent, Gopal Krishna Gokhale left the scene before the 30th session at Bombay in 1915.

With the death of these stalwarts, the party entered a new phase under the leadership of Mahatma Gandhi and Motilal and Jawaharlal Nehru.

those who accepted the new creed were eligible for membership. This naturally excluded the extremists. The moderates, thus left alone, had to keep the Congress going as best they could.

Since independence there have been 15 Congress Presidents including the present President, Mr. Rajiv Gandhi. The congress split in 1969 and the Election Commission on Jan. 12, 1971 and subsequently the Supreme Court, on Nov 11, 1971, ruled that the faction led by Jagjivan Ram was the real Congress. On July 23, 1981, after the 7th Lok Sabha elections, the

Congress Presidents From 1885

1885	W.C. Bannerjee
1886	Dadabhai Naoroji
1887	Badruddin Tyabji
1888	George Yule
1889	Sir William Wedderburn
1890	Sir Phirozshah Mehta
1891	P. Ananda Charlu
1892	W.C. Bannerjee
1893	Dadabhai Naoroji
1894	Alfred Webb
1895	S.N. Banerjea
1896	Rahimtulla Sayani
1897	C.S. Nair
1898	A.M. Bose
1899	R.C. Dutt
1900	N G Chandravarkar
1901	D E. Wacha
1902	S N Banerjea
1903	L.M Ghosh
1904	Sir Henry Cotton
1905	G K. Gokhale
1906	Dadabhai Naoroji
1907	Dr Rashbihari Ghosh
1908	Dr Rashbihari Ghosh
1909	M M Malaviya
1910	Sir William Wedderburn
1911	B N Dhar
1912	R N Madholkar
1913	Syed Mohammad Bahadur
1914	Bhupendra Nath Basu
1915	Sir S P. Sinha
1916	A.C. Mazumdar
1917	Mrs. Annie Besant
1918	(Special Session) Hassan Imam
1918	(Annual Session) M.M. Malaviya
1919	Motilal Nehru
1920	(Special Session) Lajpat Rai
1920	(Annual Session) Vijayaragavachariar
1921	C.R. Das (In Prison) Acting President Hakim Ajmal Khan
1922	C.R. Das
1923	(Special Session) A.K. Azad
1923	(Annual Session) Mohammed Ali
1924	M.K. Gandhi
1925	Mrs Sarojini Naidu
1926	S. Srinivasa Iyengar
1927	Dr. M.A. Ansari
1928	Motilal Nehru
1929-1930	Jawaharlal Nehru
1931	Vallabhbhai Patel
1932	R. Amritlal
1933	Mrs. J.M. Sen Gupta
1934	Rajendra Prasad
1935	Rajendra Prasad
1936	Jawaharlal Nehru
1937	Jawaharlal Nehru
1939	Subhas Chandra Bose (Subhas Chandra Bose was re-elected but had to resign. Rajendra Prasad was appointed in his stead)
1940–46	(Maulana) Abul Kalam Azad
1946 (July-Sept.)	Jawaharlal Nehru
1946–47	J.B. Kripalani
1948 Jaipur	Pattabhi Sitaramaiah
1950 Nasik	Purushotam Das Tandon
1951 Delhi	Jawaharlal Nehru
1953 Hyderabad	Jawaharlal Nehru
1954 Kalyan	Jawaharlal Nehru
1955 Avadi	U.N. Dhebar
1956 Amritsar	U.N. Dhebar
1957 Indore	U.N. Dhebar
1958 Pragyotishpur	U.N. Dhebar
1959 Nagpur	U.N. Dhebar
1960 Bangalore	Indira Gandhi
1961 Bhav Nagar	N. Sanjiva Reddy
1962	N. Sanjiva Reddy
1964 Bhubaneswar	K. Kamaraj
1965 Durgapur	K. Kamaraj
1966 Jaipur	K. Kamaraj
1968 Bangalore	S. Nijalingappa
1969 New Delhi	C. Subramaniam
1970 Delhi	Jagjivan Ram
1971 Ahmedabad	D. Sanjivayya
1972 Calcutta	Shankar Dayal Sharma
1975 Chandigarh	D.K. Barooah
1976 New Delhi	Brahmananda Reddy
1978 New Delhi	Indira Gandhi
1983 Calcutta	Indira Gandhi
1984 New Delhi	Rajiv Gandhi

Election Commission finally recognised the Congress led by Mrs. Indira Gandhi as the legitimate organization.

On the other side, the Congress faction opposed to Mrs. Indira Gandhi has been led by veterans like Messers S. Nijalingappa, Devraj Urs and Sharad Pawar. Also there are other Congresses like Congress for Democracy (CFD) led by Mr. H.N. Bahuguna and Congress (J) once led by the late Mr. Jagjivan Ram.

REPRESSION AND REFORM

The year 1908 saw a hideous tug of war between the Government armed with powerful weapons of repression and an infuriated people putting up resistance with all their force of will and sacrifice against the onslaught of the other.

The natural result was that agitation went underground. Secret societies were formed everywhere and terrorism became their watchword. Bombs and bullets replaced hartals and processions. The government tied together all suspected persons into conspiracy gangs and prosecuted them wholesale.

Trials and convictions became the order of the day. Outstanding leaders were either imprisoned or deported. Bipin Chandra Pal and Lajpat Rai went into-self-imposed exile, Aurobindo escaped to Pondicherry, a French enclave and Tilak remained incarcerated in Mandalay.

The Government of India armed itself with a series of extraordinary ordinances conferring arbitrary powers to arrest, detention and confiscation for even trivial infringements of the law. *The Explosive Substances Act 1908 the Indian Criminal Law Amendment Act 1908 and the Newspapers (Incitement and Offences) Act 1908,* followed the *Prevention of Seditious Meetings Act 1907,* which was already in force. As an epilogue to the whole unsavoury set-up of laws came the *Press Act of 1910,* which was drawn up to close all loopholes in the Newspapers Act of 1908 and to make it more forbidding and intimidating.

Moreley-Minto Reforms of 1909 provided for greater association of qualified Indians with the Government in deciding public questions. One seat on the Governor General's Council was reserved for an Indian. Satyendra Sinha (later Lord Sinha of Raipur) was the first Indian to be appointed to the Governor General's Council as Law Member. The Governors' Councils of Madras and Bombay were enlarged to contain four members each. An Executive Council was formed in Bengal.

The composition and functions of the legislative Councils were changed. The number of additional members to the Central Legislature was raised from six to a maximum of 60 of whom not more than 28 were to be officials. The Governor General had the power to nominate three non-official members to represent specified communities. Two other seats were also reserved for nomination. The remaining 27 were to be elected from certain classes like land owners and organizations like Chambers of Commerce.

In the Provincial Councils, the maximum number of members was raised to 50 but the majority of them were to be officials and nominated members. The elected members were again to represent certain specified classes or bodies. The Muslim community was to get representation, through a separate electorate reserved for them. Thus, the principle of communal representation was constitutionally recognised for the first time.

If the reforms were intended to pacify unrest, they failed. The vicious chain of violence, repression and more violence remained unbroken. The mists of doubt and apprehension clouded the horizon.

This satisfied the policy makers in Delhi and London. What they wanted was to boost the Muslim League as a counter weight to the Congress. They knew that the move was likely to create communal conflict and apparently welcomed it for that very reason.

The First World War brought Britain into conflict with Turkey, whose Sultan styled himself the Khalif of all Muslims. That the Khalifate was in danger shook the passivity of the Indian Muslims and made them restive and thirsting for some sort of action.

The Montague-Chelmsford Report noted that though the Muslims as a whole ke[illegible] of from revolutionary activities from

1910 "since 1911 their attitude has been growing far less acquiescent". At the (Royal) Coronation Durbar held on December 12, 1911, two important announcements were made, one was the annulment of the partition of Bengal and the other the transfer of the capital from Calcutta to Delhi.

It was thought that the first would placate the Hindus and the second the Muslims. Both failed to evoke the expected responses. Already, the partition of Bengal had become a side issue as far as the Hindus were concerned. The main issue became a larger share in the government of the country

The transfer of the capital evoked little or no enthusiasm among the Muslims One salutary effect was that the old Muslim leaders, who were preferred and pampered by the British found themselves practically ignored. Many of the oldtimers like the Aga Khan and the Nawab of Dacca left the League. Fresh blood like M. A. Jinnah and Muhammed Ali became the leaders of the organization

The change in leadership helped to bring the Congress and league together Both represented the middle class intelligentsia of India The 1913 session of the League at Lucknow, foreswore the oft-repeated loyalty to the crown and adopted 'self-government under the aegis of the British crown' as its political goal In 1915 the Congress and the League se the same place (Bombay) for their l conferences and most of the delegates th organizations indulged in frequent change of ideas Again in 1916, the Congress and the League met at the same place, Lucknow. At Lucknow the Congress conceded the Muslim demand for separate electorates and the Muslims responded by reducing their weightage in elections in the Muslim majority provinces of Punjab and Bengal. This agreement came to be known later as the *Lucknow Pact.*

With Turkey joining Germany against the allies in the first World War, the loyalty of the Indian Muslims to the British crown became suspect. The Muslim newspapers which supported Turkey were suppressed and repression was let loose on the Muslims

Side by side, the British government adopted conciliatory tactics also, like promising that the Muslim holy places outside India will be protected by the allies. Meanwhile, Annie Besant who had joined the Congress joined hands with Tilak in demanding Home Rule for India.

Montford Reforms, so called after Montague, the Secretary of State for India and Chelmsford the Viceroy are contained in the Government of India Act 1919. Before the Act was passed, the British made the historic announcement (Aug. 20, 1917) that the policy of H.M.'s Government... *"is that of increasing association of Indians in every branch of the administration and the gradual development of self-governing institutions with a view to the progressive realisation of responsible government in India as an integral part of the British Empire"*

The Government of India Act 1919 provided, among other things, for two chambers of legislature at the Centre—the Legislative Assembly and the Council of State. The Assembly was to consist of 103 elected and 42 nominated members. All decisions of the legislature were subject to ratification by the Viceroy. In the provincial sector, a form of dyarchic government was established.

With the defeat of Turkey and the abolition of the Sultanate, the Khalifate ceased to exist. This agitated all Muslims in India. The Muslims of the world had no religious head. In 1919 a conference at Lucknow, sponsored by Muslim leaders, the Ali brothers—Muhammad Ali and Shaukat Ali—and Abul Kalam Azad decided to form an All India Khilafat Committee.

Seth Chotani of Bombay was elected President and Shaukat Ali, brother of Muhammud Ali, the Secretary. Shaukat Ali, who was at the time in prison, was to take charge as soon as released.

Rowlatt Act, so-called after the President of the Committee, which was constituted to review the measures to be adopted to contain the national movement, sought to perpetuate the extraordinary powers conferred on the government during the war period. These were framed as 2 Acts (collectively known as the Rowlatt Act) which the Imperial Legislative Council dutifully passed in March, 1919.

This Act roused the ire of all Indians, Hindus and Muslims alike. Muhammad Ali Jinnah, later to become the President of the Muslim League and the founder of Pakistan, resigned his seat in the Council. In his letter of resignation to the Viceroy he wrote "In my opinion, a government that passes such a bill or such laws, in times of peace forfeits the claim to be

convicted to 6 years imprisonment and confined to the Yervada Central Prison in Pune (then Poona).

The Congress met in Gaya in December, 1922 under the Presidentship of C. R. Das. A Committee appointed to enquire into the civil disobedience movement, opined that the country was not prepared to continue the movement and recommended that cooperation with the government under the Montford Reforms would be more helpful to the national cause. This meant entering the legislative councils. However, a resolution to this effect was defeated. C. R. Das resigned from the Presidentship on January 1, 1923. He and Motilal Nehru formed the Swaraj Party.

Khilafat Movement, however strong, had ultimately fizzled out.

Swaraj Party founded by C. R. Das and Motilal Nehru was desirous of working the Montford Reforms, while the Nationalists or Extremists were opposed to it. The Swaraj Party consisting of Moderates and Liberals, contested the 1920 elections and some of them were elected, Srinivasa Sastri and Sivaswamy Iyer among others. They formed a sort of opposition and succeeded in defeating many government motions and abolishing certain obnoxious acts as the Press Act of 1910.

In 1921, the second election for the Central Legislature was held. By the time, provinces were having their elected Cou Here also, the Swaraj Party made its political force. In the second Imperial Le tive Assembly the Swarajists captured 47 o elected seats. The leader in the Imp Legislative Assembly was Motilal Nehru was ably assisted by a cadre of celebri Vithalbhai Patel, Ramaswamy Iyengar, Chandra Pal, and others.

The membership of the Councils of tempting opportunities for ambitious m aspire for influential positions and cushy

This naturally led to splits within the In June 1925, C. R. Das passed away. Wit towering personality out of the scene, disruptions appeared in the party.

The Viceroy—Lord Reading—took advantage of the differing opinions in Swaraj Party. He affirmed that the govern had no ideas of changing its stand, abolishing iniquitous acts like the Be Ordinance. The Swarajists, finding thems thwarted at every session, walked out o assemblies. Even then, there were a numb leaders like Jayakar, Kelkar, etc. among who chose to continue to cooperate wit government. They formed a new party *Responsive Cooperation Party*. It was born.

ACTS AND CONFERENCES

prerequisite of *Swaraj* or independ-e was an accord between the Hindus and the Muslims. All leaders were agreed on it. The Hindu majority believed that *Swaraj* meant *Muslim Raj* while the Muslim minority was afraid that the Hindu majority would swamp them.

By 1906, the Muslims expressed their fears by demanding separate electorates. The British Indian Government was only too glad to accommodate Muslims. The Government openly favoured the Muslims, on the ostensible ground that they were a minority and needed protection

During the early years of non-cooperation, it appeared that the two communities came together. But then there was the Khilafat movement to link them together.

The Moplah (Muslims) rebellion of 1921 in Kerala (then British Malabar) transfo itself as the massacre of Hindu landed fam destruction of *Hindu properties* and H temples Even forcible conversion of Hindus was reported.

The revival of the Hindu Maha Sabh 1923 added fuel to the fire. In 1924, comm troubles seemed to hold the whole of In its diabolic grip. Its worst manifestation w Kohat (North West Frontier Province) o 9th and 10th September 1924. There large scale killings of Hindus and looti Hindu properties and the Hindu popul had to be evacuated from the town.

The suspension of the non-cooper movement following the Chawri Chawra dents and the vaporisation of the Kha (1924) left nationalist India in a pol vacuum. Gandhiji felt that before fu

on joint electorates with reservation of seats for Muslims someone or another raised objections on one point or another all the time. This obstructed any final solution. Thus the negotiations dragged on till the end of 1929, when the Congress came out with the outright declaration on 31st December 1929, that "the word Swaraj in Article 1 of the Congress constitution shall mean complete independence".

While the talks continued Gandhiji decided to launch Satyagraha and advised the Viceroy about his decision. His first act was to go to Dandi and make salt which was then a government monoploy. He set out on the march at the age of 61 in March 1930. He reached Dandhi with his followers on April 5, 1930. He walked into the sea waters and returning took a lump of salt from the salt fields and thus violated the law

All repressive laws were soon brought into force. The repealed Press Act of 1910 was revived. Gandhiji and a lot of other outstanding leaders were arrested In the agitation that followed some 100,000 persons were reckoned to have been imprisoned

It was expected that with the incarceration of Gandhiji on May 5 at Yervada Jail and the imprisonment of the other leaders the movement would dissipate The effect was just the [illegible]y Satyagraha became a way of life for [illegible] of Indians and the leaderless movegrew apace every day. On June 2 Lord . the Viceroy wrote. "the movement is [illegible]s and has permeated many strata of ndian society. It has caught their imagination and swept them off their feet and obviously has dangerous potentialities".

In the face of the growing agitations, the Government of India decided to summon a Round Table Conference in London. This was to consist of representatives of the following: (1) all India parties—moderates and extremists alike (2) communal organizations like the Hindu Mahasabha, the Muslim League, the Sikhs, Christians, etc. (3) land-owners and industrialists (4) special Indian groups like the Europeans and Anglo-Indians (5) Indian Princes (6) British Parliament members representing all parties. There were altogether 89 members.

Congress leaders like Gandhi who were in prison were not invited since they laid down a condition precedent for the Round Table, namely the announcement that *Poorna Swaraj* for India was the ultimate objective of the Round Table.

The First Round Table Conference was opened by *King George V* on November 12, 1930. The King observed, "Ten years is but a brief span in the life of any nation but the decade has witnessed...a quickening and growth in ideals and aspirations of nationhood, which defy customary measurement of time". This was only too true for the progress in nationalist growth during the decade was unique. If the Round Table achieved nothing else it evolved a new concept of true India—a federation consisting of the British administered provinces and states ruled by Indian princes.

This was a magnificent objective, a "great and mighty conception", as Lord Reading put it. For the rest, the conference was a dismal failure.

The Round Table Conference having failed to achieve any substantial solution to the Indian problem, and the civil disobedience movement going on with increasing momentum all repressive laws were brought into action again. It was only then that the British authorities realised that there can be no abiding solution of the Indian question, without the active cooperation of the Congress leaders. As a first step towards reconciling the Congress, Gandhiji and the other leaders of the Congress were released from jail on January 26, 1931.

Gandhiji on release felt that he wanted peace but with honour. Britain also wanted peace but without trouble. But first, the impasse had to be broken. So Gandhiji wrote to the Viceroy, asking for an interview. A pact was agreed upon during the interview. Gandhiji was spiritualism personified. Lord Irwin was a devout Christian at the bottom. It was this common character that blossomed forth as the Gandhi-Irwin Pact in March 1931.

The main points were (1) Federal character of free India (2) Participation of the Congress in all negotiations (3) Civil Disobedience movement will be discontinued (4) Boycott of British goods may be resorted to on a propagandist basis but not as a political weapon (5) Picketting and boycott activities may be carried on but without offending the

existing laws (6) Ordinances promulgated to countenance civil disobedience movement and consequential acts following upon them, like prosecutions and confiscations, will be rectified as far as they were possible of rectifications.

The Gandhi-Irwin pact was ratified by the Congress at its Karachi Session presided over by Vallabhai Patel on March 29, 1934. The *Second Round Table Conference* which opened on the 7th September 1931 was distinguished by the fact that the Congress participated and was represented by Gandhiji as the sole delegate of the Congress.

By this time, a National government by Ramsay Macdonald was formed in Britain. It wa dominated by the Conservative Party. Sir Samuèl Hoare succeeded Wedgewood Benn as the Secretary of State for India, while Lord Willingdon replaced Irwin as Viceroy. This change complicated matters. The British authorities wanted to exploit the communal tangle to the utmost.

There were more than 104 members for the Second Round Table Conference including Gandhiji. The Muslim question had already become acute with extremists gaining the upper hand in the Muslim League. In April 1931 the All India Muslim League declared their minimum programme which contained 10 demands: (1) autonomy of the federating units (2) Residuary powers for the states (3) Transfer of power to provincial governments (4) Federal subjects to be selected by the consent of the provinces (5) No difference in the powers exercised by the British provinces and the Indian States (6) One-third of Federal seats to go to the League (7) Muslim majority rule in Muslim-majority provinces (8) Separate communal electorates (9) Muslim members in both federal and provincial cabinets (10) No legislation in communal matters, if ¾ of the community members objected.

A Minorities Sub-Committee was appointed by the Second Conference, presided over by the British Prime Minister. Here all minor groups agreed with the Muslim League on one point—that their inerests should be maintained and protected, whatever form the Constitution assumed. It was difficult to provide such a blanket assurance to all minorities big and small. The conference concluded without reaching any decision.

When Gandhi returned to India in December 1931 the country was labouring under a load of repressive laws called Ordinances. 15 Ordinances were passed in 1931 alone. The only remedy left was to resume civil disobedicence.

In the North West Frontier Province Abdul Gaffar Khan (since known as the Frontier Gandhi) raised a volunteer corps of one lakh Pathans called the Servants of God and affiliated it to the Congress. In Bengal, terrorism began again. The Government issued more harsh and stern Ordinances for the muzzling of the press, detention of suspects and unfettered freedom for the executive to do whatever they thought fit.

In 1932 the working committee of the Congress called upon the nation to resume Civil Disobedience including nonpayment of taxes. Fresh ordinances were promulgated by the Government. All outstanding leaders of the Congress were arrested and imprisoned.

The Second Round Table conference having failed to solve the communal problem, the British Prime Minister took it upon himself to do it. In August 1932 Prime Minister Ramsay Macdonald announced the communal award. The Award was based on the British theory that India was not a nation but congeries of racial, religious and cultural groups, castes and interests. The following minorities were recognised under the Award—Muslims, Depressed classes, Backward classes, Indian Christians, Anglo-Indians, Sikhs, Europeans, Landholders, Commercial and Industrial classes, Labour and Universities. These were given more than their legitimate shares of seats in the legislatures.

As a protest against the proposal Gandhiji started a fast on Sept 26, 1932. The news sent a shiver through the nation. The leaders of the upper caste Hindus and those of the depressed classes met and came to an agreement on the question. This is known as the *Poona Pact*. They requested the Government to drop the proposal for separate electorates. The Government of India agreed to do so and Gandhiji broke his fast on Sept. 29, 1932.

The *Third Round Table Conference* met in London on November 17, 1932 and continued its deliberations till December 24. This session was only a shadow of the earlier conferences. Jinnah was not invited. The princes were not interested and sent their ministers to the

conference. Sir John Simon was one of the British delegates who attended. After the end of the conference the British Government published a White Paper which practically reproduced the Simon Commission recommendations but added a scheme for a Federal Government if the Princely States agreed. The White paper in due course became the Government of India Act 1935.

The Act of 1935 provided two alternate constitutions for the Central Government—one a Federal Government consisting of British provinces and Indian States, that is, if a majority of Indian States were willing to accede to the Federation. This never happened. The alternative was to work the 1919 Act with some modifications. This was the alternative finally accepted. In this as in all previous Acts, the Governor-General had overriding authority in all matters.

Provincial constitutions proposed were markedly different from the previous ones In the first place dyarchy was abolished. The provinces were considered autonomous and were to be governed by ministers chosen from the elected members Though the Govenonr, still possessed overriding authority, it was understood that he would not interfere, until a crisis of some sort emerged.

The Act came into operation from April, 1937, so far as the provinces were concerned. The Central Government continued without any major change. After a lot of discussion whether the Congress should cooperate in working provincial governments, it was finally decided that it should. The Congress put up its own candidates in every province. So also did the Muslim League and lesser political parties.

The Congress won with a huge majority in five provinces—Madras, Bihar, Central Province, United Province and Orissa. In the other provinces Congress acquired a sizeable number of seats. In 1937 the Congress took charge of the governments in seven provinces as interim ministries. In the remaining four provinces— Punjab, Bengal, Assam and Sind,—non-Congress parties took office.

The federal part of the new constitution, having been shelved, the Central Assembly of 1934 continued to function. It continued with 44 Congressmen led by Bulabhai Desai and 11 Nationlists under M. S. Aney. Independents who held the balance were led by M. A. Jinnah. The sole purpose of the Central Assembly was to show that it had no confidence in the Government. This was achieved by cut motions, rejections of the budget, etc. These activities had little impact because the Viceroy had the ultimate power to certify any bill as passed.

HE PARTITION

Though partition of India broke into history suddenly and ruthlessly, it had been in the making for a long time. Its roots were visible in the Hindu-Muslim riots which started as early as 1881 and continued intermittently.

The British administration took advantage of these riots so as to encourage the Hindu-Muslim conflict and perpetuate it. Ostensibly, three factors triggered communal riots: (1) Cow protection (2) Hindi-Urdu controversy and (3) Assertions of religious privileges on the occasions of festivals and holy days, especially when Hindu and Muslim festivals coincided.

These were only the apparent causes. The real reasons were more political than religious.

The formation of the All India Muslim League at Dacca (now Dhaka) in December, 1906, provided a focal point for Muslim political aspirations. When Muhammed Ali Jinnah became President of the League, he started defaming and devaluing the Congress as a national organization.

In 1937, when the Congress and the Muslim League started working provincial ministries, the rivalry between the two organizations came into the open.

In 1937, Jawaharlal Nehru wrote to Jinnah, "In the final analysis, there are only two forces in India today—British Imperialism and the Congress representing Indian Nationalism", Jinnah replied pointing out (1) that the Hindus and Muslims had nothing in common and (2) that the Muslims of India constituted a separate nation and therefore needed a separate

state. The rift was complete.

The Congress suffered a great impairment of power by the alienation of Jinnah. Jinnah, who had resurrected the League, towered above all other Muslim leaders and the Muslim community as a whole supported him. However, the Congress claimed some Muslim leaders, who were distinguished from the League adherents as nationalist Muslims. Abul Kalam Azad was one such. The essential trouble here was that leaders like Azad were few and far between and commanded little mass support among the Muslim community. The British government openly supported the Muslim League. So the partition of India was only a question of time.

The outbreak of the Second World War, which commenced with Hitler's invasion of Poland on September 1, 1939, called for a complete change of policy on both sides—the British Indian Government and the National Congress. India was declared a belligerent nation by Britian on September 3, 1939, and the British Indian administration was placed on a war footing. The war lasted 6 years, till September 1945. During this period there was a lull in national agitation.

The Congress, as a whole supported the democratic allied countries, led by Britian but resented the fact that it was not taken into consultation in declaring India a belligerent nation. In the circumstances, all that the Congress could do was to call for an immediate assurance from Britain, that independence would be given to India, as soon as the war emergency was over.

The British Government paid no heed to this demand. The Congress reacted by asking all provincial Congress ministries to resign (October 1939). When the Congress ministries resigned, the Muslim League observed 'The Deliverance Day' from Congress rule on 22nd December, 1939. This was an indication of the increasing animosity between the two organizations.

In March 1940, at its annual session in Ramgarh the Congress demanded complete independence and a Constituent Assembly to draft a constitution for free India. In the same month, the Muslim League at its Lahore session demanded a separate state for the Muslims of India. In August the Viceroy announced that his Executive Council would be expanded to include more Indians, and a war advisory council would be established. Both the Congress and the League rejected the offer.

In March 1942, the British Government sent Sir Stafford Cripps to India with proposals for a new constitution. The Cripps' proposals were found unsatisfactory and were rejected both by the Congress and the League. In May 1942, Gandhiji called on Britian to "Leave India to God. If this is too much, then leave her to anarchy".

In August 1942, the Congress working committee considered Gandhiji's call to Britain and passed the famous 'Quit India' resolution. If Britian did not take steps to quit India as soon as possible, the Congress proposed to start Civil Disobedience. The Government retaliated by arresting Gandhiji and all the members of the working committee and declared Congress an unlawful organization.

In 1945, Lord Wavell, the Viceroy, announced that he was holding a conference in Simla to consider the steps necessary to advance self-government for India in the near future. All Congress leaders, then in prison, were released. The Simla conference (June-July 1945) turned out to be a fiasco. But by the time, (July), a Labour Government came into power in Britain. The Labour Government took serious notice of the Indian situation.

The Labour Secretary of State for India, Lord Pethick-Lawrence announced that a parliamentary commission would be visiting India to negotiate the question of Indian independence. This delegation, later famous as the Cabinet Mission, announced its constitutional scheme, which implicitly recognised the right of the Muslims to have a state of their own. While the Muslim League accepted the proposals, the Congress rejected it.

While negotiations on the future constitution continued between the Congress and the League on the one side and with the Government on the other, the League suddenly changed its tactics. It retracted its acceptance of the Cabinet Mission Plan and declared August 16 (1946) as a Direct Action Day. It was an invitation for communal riots. The Muslims started slaughtering Hindus in all areas, where they were numerically superior. The Calcutta Killings of August 16 to 18 w

first of the riots. Then followed the killings in West Punjab, where the Muslims were in a majority. The Congress in desperation demanded the partition of Punjab.

Lord Mountbatten who succeeded Wavell as Viceroy in March 1947, boldly announced the partition of India. The provinces where the Muslims formed the majority were to be constituted into a separate state—Pakistan.*

Thus, parts of Punjab (West Punjab) an Bengal (East Bengal) and the whole of th provinces of Sind, Baluchistan and the Nort West Frontier became Pakistan. The rest India formed another State. The Indian Indi pendence Act, passed by the British Parliamen (July 1947), formalised the division of Ind into two fully independent states—India Pakistan.

FATHER OF THE NATION

Mohandas Karamchand Gandhi (1869-1948), when he entered public life, was at first hailed as the Mahatma (Great Soul) and was generally called Mahatma Gandhi. Since his death he has been universally acclaimed as the Father of the Nation.

Gandhiji started his public career in South Africa, where the white race ruled and Indians and native Africans alike were treated as slaves and outcasts. He entered Indian public life through the Indian National Congress, which he dominated from 1920 onwards. He was the main architect of the Indian nation and is rightly called the Father of the Nation.

The important dates and events of his life are briefly described below:

1869: Oct 2. Born at Porbandar, Kathiawar, ... son of Karamchand and Putlibai Gandhi. ...3. Married Kasturba. *1888:* Sailed from ...ombay for England to study law. *1891:* Summer: Returned to India after being called to the Bar. Began to practise law in Bombay and Rajkot.

1893: April: Sailed for South Africa to become lawyer for an Indian firm. Found himself subjected to colour discrimination. *1894: May:* Organized the Natal Indian Congress. *1899:* Organized Indian Ambulance Corps for the British in the Boer war. *1901:* With the family embarked for India.

1901-2: Travelled extensively in India, attended Indian National Congress meeting in Calcutta and opened law office in Bombay. *1902:* Returned to South Africa at the request of the Indian community. *1904:* Establishe the weekly journal 'Indian Opinion', Org nized Phoenix Farm near Durban.

1906: Sept: First 'satyagraha' campaign protest against proposed Asiatic ordinanc directed against Indian immigrants in Tran vaal. *1907: June:* Organized 'Satyagrah against compulsory registration of Asiati (The Black Act).

1908: Jan: Stood trial for instigating 'satya raha' and was sentenced to two month imprisonment in Johannesburg jail (his fir imprisonment). Summoned to consult Gene al Smuts at Pretoria; compromise reached; w released from jail. *Feb:* Attacked and wounde by Indian extremist for settlement with Smut *Aug:* After Smuts broke agreement, secon 'satyagraha' campaign began with bonfire registration certificates.

1909: Feb: Sentenced to three month imprisonment in Volksrust and Pretoria jail *June:* Sailed for England to present Indian case. *1910: May:* Established Tolstoy Far near Johannesburg. *1913: Sept:* Helped cam paign agai[illegible] of marriages n celebrated [illegible] rites. Thir 'satyagraha' campaign. Led 2,000 Indian mi ers from New Castle across Transvaal borde *Nov:* Arrested for third time in four days. De Released unconditionally in expectation of compromise.

1914: July: Returned to India, leaving Sout Africa for ever. *1915: May:* Established Satya raha Ashram near Ahmedabad.

1917: Moved Ashram to new site on Saba mati River. Led successful 'satyagraha' cam paign for rights of peasants on indigo plant tions in Champaran. Defied order to leave are in April, was arrested at Motihari and tried, bu case was withdrawn.

* The name Pakistan and the idea of a partition were first suggested by Chowdhry Rahmat Ali, a student of the Cambridge University in 1930. In his pamphlet 'Now or Never', published in 1933, Rahmat Ali advocated the idea of partition. At the time, however, Muslim leaders scorned the idea as childish.

1918: Feb: Led strike on millworkers at Ahmedabad. Millowners agreed to arbitration after his three-day fast (his first fast in India). *March:* Led 'satyagraha' for peasants in Kheda). April: Organized nationwide hartal—suspension of activity for a day—against the Rowlatt Bills. Fasted at Sabarmati for three days in penitence for violence and suspended 'satyagraha' campaign which he called a 'Himalayan miscalculation' because people were not disciplined enough. Became Editor of English weekly 'Young India' and Gujarati weekly 'Navajivan'.

1920: April: Elected president of All India Home Rule League. Successfully urged resolutions for a 'satyagraha' campaign of non-cooperation.

1921: Resolved to wear only a loin cloth to propagate homespun cotton and to signify his identification with the people. Mass civil disobedience, thousands went to jail. Gandhi invested with 'sole executive authority' on behalf of Indian Congress.

1922: Suspended mass disobedience because of violence at Chawri Chara and undertook five-day fast of penance at Bardoli. Arrested at Sabarmati on charge of sedition for articles in 'Young India'. Pleaded guilty in a famous statement at the 'great trial' in Ahmedabad before Judge Broomfield. Sentenced to six years' imprisonment in Yervada jail.

1929: Arrested for burning foreign cloth in Calcutta and fined one rupee. *1929 Dec:* Congress session at Lahore voted for complete independence and a boycott of the legislature. *January 26* proposed as National Independence, day. Third all-India 'satyagraha' campaign.

1930: March 12: Set out from Sabarmati with 79 volunteers on historic Salt March 200 miles to sea at Dandi. *April 6:* Broke salt law by picking a handful of salt up at seashore. Arrested by armed policemen at Karadi and imprisoned in Yervada jail without trial. One hundred thousand persons arrested.

1931: Jan: Released unconditionally with 30 other Congress leaders. *March:* Gandhi-Irwin (Viceroy) Pact signed, which ended civil disobedience. *Aug:* Sailed from Bombay for the Second Round Table Conference in London. *Dec:* Returned to India. Authorised by Congress to renew 'satyagraha' campaign (fourth nation wide effort).

Homage to the Mahatma: The 8-foot statue of Gandhiji unveiled in New York's Union Square on October 2, 1986, on the occassion of his 117th birth anniversary.

1932: Jan: Arrested in Bombay with Sardar Patel and detained without trial at Yervada prison. *Sept. 20:* Began 'fast unto death' while in prison in protest against British action giving separate electorate to untouchables. *Sept. 26:* Concluded "fast" in the presence of Rabindranath Tagore after the British accepted 'Yervada Pact'.

1933: Began weekly publication of 'Harijan' in place of 'Young India'. *July:* Disbanded Sabarmati Ashram which then became centre for removal of untouchability. *Nov:* Began ten-month tour of India to help end untouchability.

1934: Oct: Launch[illegible]

tries Association. *1940: Oct:* Launched limited, individual civil disobedience campaign against Britain's refusal to allow Indians to express their opinions regarding World War II. 23,000 persons imprisoned within a year.

1942: : Met with Sir Stafford Cripps in New Delhi but called his proposals 'a postdated cheque'; these were ultimately rejected by Congress. Congress passed 'Quit India' resolution—the final nation-wide "Satyagraha campaign" with Gandhi as the leader. Arrested with other Congress leaders and Kasturba and imprisoned in Aga Khan Palace, near Poona. Revolts in many parts of the country.

1943: Feb 10: Began fast at Aga Khan Palace to end deadlock between Viceroy and Indian leaders.

1944: Feb 22: Kasturba died in detention at Aga Khan Palace at the age of 74 *May 6.* After decline in health, was released unconditionally from detention (this was his last imprisonment; he had spent 2,338 days in jail during his life-time).

1946: Began four-month tour of 49 villages in East Bengal to quell communal rioting over Muslim representation in provisional government.

1947: : Toured Bihar to lessen Hindu-Muslim tensions. Began conferences in N Delhi with Lord Mountbatten and Jinnah. *M* Opposed Congress decision to accept divis of country into India and Pakistan. Fasted prayed to combat riots in Calcutta as India partitioned and granted Independence. Visi Delhi and other neighbouring areas to s rioting and to visit camps for refugees.

1946 onwards, Gandhiji's efforts were c centrated on effecting Hindu-Muslim acc Hindu-Muslim riots had broken out all o India, ever since the League President, Jinn rejected the Cabinet Mission Plan and pr laimed August 16, 1946 as Direct Action Da was never clarified what Direct Action re involved. But the Muslims responded to call with vengeance. The great Calcutta killi of August 16/18 were the first bitter harves the Direct Action Day. Gandhiji visited many these areas—Noakhali for instance—to rest communal amity

1948 Gandhiji undertook a fast for 5 days bring about communal unity. On January while holding a prayer meeting at Birla Hou *Delhi, Gandhiji was shot dead by a Hin* fanatic Vinayak N. Godse, who was dea opposed to Gandhiji's efforts to bring ab Hindu-Muslim amity. Thus ended the life the greatest Indian since The Buddha.

FREEDOM AND AFTER

British Government announced on Feb. 20, 1947 its intention to quit India by June 1948. Lord Mountbatten was named Viceroy to arrange the transfer of power. He assumed office on March 24 and broadcast his plan for a partition of India.

Here is a chronology of events.

1947:. British Parliament passes the India Independence Act (July 1) and fixes Aug. 15 for the transfer of power. Partition of India into India & Pakistan. Power transferred to India and Pakistan. Lord Mountbatten becomes Governor General of India and M. A. Jinnah, Governor General of Pakistan (Aug. 15).

1948: Assassination of Mahatma Gandhi (Jan. 30). Death of M. A. Jinnah (Sept. 11). The Government of India occupies the Nizam's dominions (Hyderabad State).

1949: Constitution of India adopted by the Constituent Assembly (Nov. 26).

1950: Constitution of India comes into fo (Jan. 26). Sardar Patel dies (Dec. 15).

1951: The first general election in India. F amendment to the constitution.

1952: Dr. Rajendra Prasad elected Rashtrap (Head of State).

1954: Panch Sheel agreement between Ch and India.

1955: Avadi session of the Indian Natio Congress adopts a socialistic pattern of soci for India.

1956: Life Insurance nationalized. States Reorganization Act.

1957: Second General Election. Rajendra P sad re-elected for a second term.

1958: Metric system of weights and measu introduced.

1959: Swatantra Party formed.

1960: Bombay bifurcated into Maharash

announces 20-point economic programme. New ordinances promulgated (July 1). The RSS, Anand Marg, Jamat-i-Islami and 23 other organizations banned. Parliament approves Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA). Parliament approves MISA bill. Constitution (39th Amendment) Bill 1975, placing election of the President, the Vice President, the PM and the Speaker of the Lok Sabha beyond the scrutiny of the judiciary, approved by Parliament. Rajya Sabha adopts Constitution (41st Amendment) bill extending immunity from criminal and civil proceedings to the Prime Minister. Calcutta and Madras on TV map of India. Ordinance promulgated for grant of national permits for goods trucks (Sept. 26). Government announces 12-point programme for making prohibition policy a success (Oct. 1). K. Kamaraj dead (2). 'Bonded' labour abolished by Ordinance (24) P.M.'s election upheld by the Supreme Court (Nov. 7). Naga problem settled (11). J.P. set free (Dec. 4). 75th plenary session of the congress opens at Chandigarh. D. K. Barooah elected Congress President.

1976: Baliram Bhagat elected Lok Sabha Speaker (Jan 6). President suspends seven freedoms guaranteed by Article 19 (8). Burmah Shell nationalized, becomes Bharat Refineries Limited (24). Lok Sabha's life extended by one year (Feb. 4) Urban Ceilings Act comes into force (17). IA Boeing 737 to mbay via Jaipur hijacked to Lahore. 89 illed in IA plane crash at Bombay airport (Oct. 12). Lok Sabha passes the 42nd Constitution Amendment Bill making India a Socialist Secular Republic and laying down fundamental duties for citizens (Nov. 2). Lok Sabha votes to extend its own life by another year (5).

1977: The President dissolves Lok Sabha (Jan. 18). Government relaxes rules of Emergency to permit normal political activity and electioneering. Four parties—Congress (O), Jan Sangh, Bharatiya Lok Dal and the Socialist Party—agree to work as one party under the name *Janata Party*. President Fakhruddin Ali Ahmed passes away in New Delhi. B. D. Jatti sworn in Acting President (Feb. 11). India's second earth station for satellite communication at Dehra Dun inaugurated (25). Polling in the Lok Sabha election starts (Mar. 16). Internal Emergency promulgated on June 25, 1975 withdrawn (21)

Janata and its allies gain absolute majority in Lok Sabha. Indira Gandhi resigns (22). Ban on RSS and 26 other organizations lifted. A. K. Gopalan, Marxist leader, dies in Trivandrum. The RSS chief Deoras released. Morarji Desai elected leader of Janata Party and sworn in Prime Minister (24). Sixth Lok Sabha session begins (25). Sanjiva Reddy elected Speaker of the Lok Sabha. Government revokes the external emergency promulgated on December 3, 1971.

The Acting President B. D. Jatti dissolves the Legislative Assemblies of nine Congress-ruled States, Bihar, Haryana, Himachal Pradesh, M. Pradesh, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal and places them under President's rule. Four Parties—Congress (O) (Old Congress as distinguished from Indira Congress), Jan Sangh, Bharatiya Lok Dal and Socialist Party—at their separate sessions decide to dissolve themselves and merge into a single party (30). Chandra Shekar chosen President of the Janata Party (May 5).

K. Brahmananda Reddi elected President of the Indian National Congress. The Election Commission recognizes the Janata Party as a National Party. Poll notifications for ten states and two union territories issued. Janata gains absolute majority in Haryana, Himachal Pradesh, Orissa, U.P., M.P., Bihar and Rajasthan Assemblies and Delhi Metropolitan Council. Akali-Janata-CPM alliance wins absolute majority in Punjab. The All-India Anna DMK gets absolute majority in Tamil Nadu. No party gets absolute majority in Pondicherry. C.P.M. gains absolute majority in West Bengal. Government decides to discontinue national civilian awards (July 10).

Sanjiva Reddi elected (unopposed) President of India. K. S. Hegde unanimously elected Lok Sabha Speaker (21). The Planning Commission decides to introduce Rolling Plan concept (Sept. 10). Variable energy cyclotron commissioned in Calcutta (15). Indira Gandhi arrested in New Delhi by the CBI on charges of corruption and released unconditionally. The External Affairs Minister A. B. Vajpayee addresses UN General Assembly in Hindi, the first ever. India and Bangladesh formally sign Farakka agreement in Dacca. The silver jubilee time capsule in the Red Fort dug out (Dec. 8).

THE TURBULENT EIGHTIES

1980: Polling in the Seventh General Election ends (Jan. 6). Devaraj Urs, Karnataka Chief Minister, resigns, following reverses in elections (7). Care-taker Prime Minister Charan Singh informs the President of his desire to resign (9). Mrs. Indira Gandhi's Congress (I) wins two-thirds majority in the new Lok Sabha (10). Gundu Rao sworn in Congress (I) Chief Minister of Karnataka (12). Mrs. Gandhi's new Ministry at centre sworn in; R. K. Dorendra Singh Chief Minister of Manipur (14). D. Ramachandran becomes Chief Minister of Pondicherry and Pratap Singh Rane, Chief Minister of Goa (16). Assam agitation turns violent; Army called out; Oil India Manager stoned to death; Gangong Apsong sworn in as Chief Minister of Arunachal Pradesh (18). Assembly elections in Kerala; Left Democratic Frront wins absolute majority (21). Haryana's Janata CM Bhajan Lal with 37 MLAs defects to Congress (I), continues as Congress (I) Chief Minister; Bal Ram Jakhar elected Lok Sabha Speaker (22). E. K. Nayanar forms Government in Kerala (24). Civilian Awards stopped by the Janata Government revived; Mother Teresa awarded Bharat Ratna (30).

Janata Ministry headed by Shanta Kumar in Himachal Pradesh resigns; a Congress (I) ministry headed by Ramlal takes office (Feb. 4). Total solar eclipse (15). State Assemblies in Tamil Nadu, Maharashtra, U.P, Bihar, Orissa, M.P, Rajasthan, Punjab and Gujarat dissolved, ministries dismissed and President's rule imposed (17). Forty-six defence personnel killed in a plane crash in Agra. C. M Stephen wins Lok Sabha by-election from Gulbarga Constituency (23). Jagjivan Ram resigns as leader of Janata Parliamentary Party (27). C. M. Stephen made Cabinet Minister at Centre; three more Ministers of State added (Mar. 3). Jagjivan Ram "quits" Janata Party; Veerendra Patil made Cabinet Minister. Prakash Padukone becomes the first Indian to win All-England Badminton Championship (23).

Charan Singh, Chairman, expels Raj Narain from Lok Dal; Raj Narain forms a new Janata (S) Party (Apr. 2). Janata Party splits again; members with RSS links form Bharatiya Janata Party with A. B. Vajpayee as President (6). Sanjay Gandhi and V. C. Shukla acquitted by Supreme Court in the *Kissa Kursi Ka* case (11). Six more private sector banks nationalized (15). Jamir sworn in as Nagaland CM. (18). Baba Gurbachan Singh, Nirankari Chief, assassinated; son named new chief (24). Assamese poet Birendra Kumar wins 1979 Jnanapith Award (26). Supreme Court bans handcuffing of prisoners (30).

Sobha, the best actress award winner, dies at Madras (May 1). Supreme Court rules Parliament has no unlimited power to amend constitution; court also upholds validity of death sentence (9). Bahuguna quits Congress (I) and resigns from Lok Sabha (20).

AIADMK wins in Tamil Nadu Assembly election; Congress (I) wins in U.P, M.P, Gujarat, Rajasthan, Punjab, Maharashtra and Orissa (June 1). 15 more ministers added to Union Cabinet; Darbara Singh sworn in as Punjab CM and Dr. Jagannath Misra as Bihar CM (8). M. G. Ramachandran's second AIADMK Ministry takes office (9). Sanjay Gandhi appointed Congress General Secretary (13). Sanjay dies in plane crash in New Delhi (23). Former President V. V. Giri passes away (24).

India recognizes Heng Samrin Govt. in Kampuchea (July 7). Congress (I) gets absolute majority in Rajya Sabha (12). India orbits satellite: SLV-3 Rocket puts Rohini satellite in orbit (18). India regains Olympic hockey title (29).

Allahabad High Court dismisses election petition aganist Mrs. Gandhi (Aug. 12). Kudremukh Project in Karnataka completed (23).

Second Commonwealth Regional Heads of Government Conference in New Delhi (Sep. 4). T. Anjiah becomes Andhra Chief Minister (Oct. 11). Centre nationalizes Maruti company (14). Eleven more ministers added to Union Cabinet (19). Union Railway Minister Kamalapathi Tripathi resigns (25). President dimisses Tamil Nadu Governor Parwari; Saddiq Ali named successor (26). National Integration Council constituted (Nov. 6). Centre takes over Auroville (12).

Parliament condemns blinding of undertrials in Bhagalpur; Supreme Court orders enquiry into Bhagalpur blinding; former Railway Minister K. Hanumanthiah dies (Dec. 1).

rs. Anwara Taimur heads a new ministry in ssam (6). Soviet President Leonid Brezhnev rives in New Delhi (8). 1980 *Jawaharlal ehru Award* for international understanding r Mrs. Barbara Ward (23). 1981: World Tamil onference opens in Madurai (Jan. 4). Mr. B. . Nehru appointed Governor of Jammu & ashmir (15). Central Government offers full atehood to Mizoram (17).

India's 'Akrosh' and Bulgaria's 'Unknown oldier's Patent Leather Shoes' share the olden Peacock award for the best film at the th International Film Festival (Jan. 17). The ammu & Kashmir Chief Minister Sheikh bdullah names son Dr. Farooq Abdullah his uccessor (23). Third airline feeder service ayudoot inaugurated (26).

Dr. Madhuri Shah appointed Chairman of ne University Grants Commission (Feb. 3). ixty-one die in circus fire in Banglore (7). orty-four ministers take office in Andhra radesh. Census operations begin (9). Railway ares and freight to cost 10 to 15 per cent nore. M. H. Beg, former Chief Justice of India, amed Chairman of the Minorities Commission in succession to Mr. M. A. Ansari (27). Mrs. Gandhi asks the Civil Supplies Minister V. C. hukla to resign (Mar. 19). Minting of three, wo and one paise coins discontinued (20). Tamil Nadu Government relaxes Prohibition 21).

Bengali film "Aakaler Sandhane" wins 1980 warna Kamal award for best film; Dada Saheb halke award for best film goes to P. Jairaj Apr. 7). S. A. Dange, expelled from the Communist Party of India. The 105-day-old nti-reservation agitation by Gujarat students nd junior doctors withdrawn unconditionally 13). The Finance Minister R. Venkataraman nnoucnes new concessions to export-riented units (22).

Ministry led by Capt. W. A. Sangma, Congres-(I), sworn in in Meghalaya (May 8). Y. B. Chavan resigns from Congress(U) (26). More han 15 million hit by drought in Rajasthan (29). SLV-3 puts Rohini in orbit from Sriharikota (31).

General K. V. Krishna Rao assumes charge as the Chief of Army Staff (June 1). Malayalam writer S. K. Pottekkat wins the Jnanapith award for 1980, for his autobiographical novel 'Oru Desathinte Katha' (7). Rajiv Gandhi and Begum Abida Ahmed win by-elections from UP constituencies (15). APPLE, India's first geostationary experimental telecommunications satellite launched into orbit from Kourou, French Guiana. Air Marshal Dilbagh Singh is appointed Chief of Air Staff (24). Assam Chief Minister Mrs. Anwara Taimur resigns (28). President's rule imposed in Assam (30).

Over 350 die in liquor tragedy in Bangalore and Mysore (July 7). Govt. increases prices of petrol, diesel, kerosene, cooking gas and furnace oil (10). Shiv Charan Mathur sworn-in in place of Jagannath Pahadia as Rajasthan Chief Minister (13). Toddy and arrack shops reopened in Madras. India's first three-axis stabilized experimental communication (APPLE) put in its slot (16). Worst deluge in centuries in Rajasthan—Jaipur cut off (19). TV programme successfully relayed through APPLE (22). Prakash Mehrotra appointed Governor of Assam and Meghalaya and S. M. H. Burney, Governor of Manipur, Tripura and Nagaland (23).

Jagjivan Ram heads breakaway Congress(U) and calls new party Congress(J) (Aug. 5). Fifty persons given life terms for killing 14 Harijans of Pipra village in Patna district (5). The Governor of Rajasthan, Mr. Raghukul Tilak dismissed (8). Prime Minister Indira Gandhi leaves for African tour. Mr. Sharad Pawar, Maharashtra leader, elected President of Congress(U) (25). Air Chief Marshal Dilbagh Singh succeeds Air Chief Marshal Latif as Air Chief (30).

The first batch of 18 members of a pilgrim party leaves for Kailas and Manasarovar in Tibet—the first batch to go there in 20 years. Lala Jagat Narain, veteran journalist and freedom fighter, shot dead in Ludhiana (Sept. 9). B. D. Pande appointed Governor of West Bengal to succeed T. N. Singh who resigned (10). Tamil University inaugurated in Thanjavur (15). Sant Jarnail Singh Bhindranwale arrested in connection with Lala Jagat Narain's murder; violence follows; eight die in police firing (20). Oil struck in off-shore well in the Cauvery basin. Mrs. Indira Gandhi in Fiji (25) Five Khalistan activists hijack Indian Airlines Boeing 737 to Pakistan with 117 passengers; 66 freed on arrival in Lahore (29). Pakistan Commandos dressed as cleaners overpower five hijackers. Delhi asks Pakistan to extradite hijackers (30).

Activists of the Dal Khalsa who master-

minded the hijacking of Indian Airlines plane arrested (Oct. 1). Bhindranwale released from judicial custody (15). Congress(S) pulls out of ruling Marxist-led Left Democratic Front in Kerala. Bombay High Court freezes funds of the Indira Pratibha Prathisthan and the Konkan Unnati Mitra Mandal (16). Twenty-one-month-old Left United Front Ministry led by Mr. E. K. Nayanar, resigns in Kerala (Oct. 20). Kerala under central rule (21).

IMF board clears 5 billion SDR loan for India (Nov. 10). Mrs. Gandhi in Paris. France offers easy credit to buy Mirage Fighters. 1981 Nehru Award for Prof. and Mrs. Gunnar Myrdal (12). Vice Admiral Dawson named new Chief of Naval Staff (18). Bhaskara is launched from Soviet Cosmodrome (20). Sri Krishna Deva Raya University inaugurated in Anantapur (22) Air India plane hijacked from Seychelles; crew and passengers freed in Durban

Forty-five people, majority of them children, killed in a stampede in Qutub Minar, Delhi (Dec. 5). Ry. freight rates raised by 10 to 15 per cent. India-China talks open in Beijing (10). Congress (S) unit in Kerala defies national leadership and decides to join Ministry headed by Congress(I) (23). New Madras-Penang undersea cable commissioned.

New Government led by the Congress(I) leader Karunakaran, installed in Kerala. Supreme Court upholds law for detention without trial but lays down guidelines (Dec 28). Congress (I) loses nine of 29 seats in elections to the Andhra Pradesh Legislative Council, and the by-election to the Lok Sabha from Sagar in Madhya Pradesh; wins the Kosta (MP) Assembly seat (29). Supreme Court holds transfer of judges valid.

1982: Firing on Assam agitators—four killed. Film actor David Abraham dies in Toronto. 21-member Indian team lands on Antarctica. Industrialist B. M. Birla passes away (Jan. 11). Bombay High Court finds allegations against the Chief Minister A. R. Antulay justified. Antulay resigns. Jyotirmoy Basu CPI(M) M.P. dies in Jaipur (12). K. C. Gogoi sworn in as Assam Chief Minister (13). Prime Minister reshuffles cabinet. Pranab Mukherjee gets Finance; Defence for R. Venkataraman (15). Bombay textile workers go on strike (18). Babasaheb Bhosale chosen Maharashtra Chief Minister. Mizo National Front and allied organizations declared illegal (19). 14-member Assam Ministry sworn in (22). Mohan La Sukhadia, former Chief Minister of Rajasthan dies (26). Bihar Govt. suspends 40 police and medical officers in the Bhagalpur blinding case (29). Billa and Ranga hanged for the murder of the Chopra children (31).

Kerala Speaker A. P. Kurian of the CPI(M) and the Deputy Speaker, M. J. Zakaria Sait (AIML) resign and join opposition. A. C. Jose takes over as Speaker (Feb. 1). Statue of Bahubali consecrated at Dharmastala (3). An jiah announces decision to quit as AP Chief Minister (16) Sivaji Ganesan, Tamil film actor nominated to Rajya Sabha (19). B. Venkataran to succeed Anjiah as Andhra Pradesh Chief Minister (22)

Central Budget: Massive tax effort to raise Rs. 590 crores. Air Chief Marshal H. Lati appointed Maharashtra Governor. Admiral Dawson takes over as Chief of Naval Staf (March 1). Press Council reconstituted. Kerala Congress Mani group withdraws support; Cri sis in Government (15). President's rule in Kerala (17). President's rule in Assam also Assembly dissolved. Acharya J. B. Kripalan (94) dead (19). N. T. Rama Rao, film artist forms new party Telugu Desam in Andhra Pradesh (21). Prof. K. M. Chandy appointed Pondicherry Lt. Governor (22). The first Indi an-assembled Jaguar aircraft by HAL, Banga lore, test-flown (31).

India's satellite INSAT-1A placed in orbit Snag detected (Apr. 10). Jnanapith award for Amrita Preetham, Punjabi writer (11). Dr Chenna Reddy appointed Punjab Governo (12). INSAT-1A moves to parking slot (21) Karnataka PCC(S) led by Devaraj Urs severs link with parent body, the AICC(S), and forms a regional party (28). Mrs. Accamma Varkey (73), freedom fighter and Cong. MLA in former Travancore-Cochin Assembly, dies (May 5). Karnataka Kranti Ranga led by Devara Urs comes into being (10). Elections for Assemblies held in West Bengal, Haryana Himachal Pradesh and Kerala. Jyoti Basu is West Bengal CM, Karunakaran in Kerala, Bha jan Lal in Haryana and Ram Lal in H.P. (19). H. N. Bahuguna re-elected to Lok Sabha from Garhwal constituency (22). Cabinet approves Defence Minister's recommendation to set up the proposed Naval Academy at Ezhimala, Kerala (29).

D. Devaraj Urs, former Karnataka Chief

nister, dies (6). Division Bench of the mbay High Court dismisses appeal filed by mer Maharashtra Chief Minister A. R. Antu- against the finding holding Antulay guilty of bitrary allotment of cement (10). R. K. ivedi, Central Vigilance Commissioner, new ief Election Commissioner (16). 19 persons led and 25 injured in an Air India Boeing 7 from Singapore via Madras crash at mbay.

Good deposit of oil struck at Enuguvani nka in Razole structure of Godavari onshore ne 27). MGR inaugurates Tamil Nadu's tritious noon meal programme benefitting estimated 63 lakh poor children (July 1). itherine Mary Hellman (82), a close associate Mahatma Gandhi and popularly known as rla Behn, dies (8). Mira Behn (90), disciple Mahatma Gandhi, dies (20). Zail Singh orn in President (25). Petroleum Minister P. iva Shanker tells Parliament that the con- oversial Kuo Oil deal file was 'mislaid' by the pecial Assistant to the Prime Minister (28). anibhai Bhimbai Desai wins Magsaysay ward for Public Service for 1982 (31).

Fire breaks out in the Bombay High Ishore oil well where a blow-out occurred a w days earlier (Aug. 2). Indian Airlines oeing 737, from New Delhi to Srinagar jacked; hijacker overpowered, all passengers fe.

Chand Prasad Bhatt, Indian environmental- t, gets Magsaysay Award for Community adership (Aug. 4). Bombay High oil well re off. S. K. Pottekkat, (69), writer, Jnanapith ward winner and former M.P. dies (6). lanmohan Singh, Member Secretary, Plan- ing Commission, appointed Governor of eserve Bank (10). Arun Shourie, named for ie 1982 Magsaysay Award for journalism, terature and creative communication arts 12). Investment of Rs. 269 crore with a oreign exchange component of Rs. 89 crore, pproved for the Maruti project in collabora- on with Suzuki Motor Company of Japan 17). Sixty die after consuming adulterated quor at Vypeen island in Cochin (Sept. 4). NSAT-1A turned off (5). Jammu and Kashmir hief Minister Sheikh Abdullah (77) dies (7). arth stations at Delhi, Madras, Port Blair, izawl and Leh put into operation through ntelsat (10).

India leases Tin Bigha to Bangladesh, the sovereignty resting with India (Oct. 7). The Air Force celebrates 50 years (8). H. V. Kamath, freedom fighter and parliamentarian, dies (9). J. R. D. Tata, father of Indian civil aviation, pilots the De Havilland Leopard Moth from Karachi to Bombay—a feat he performed 50 years ago (15). Gandhiji's private secretary Pyare Lal dies (27).

Gen. Zia-ul-Haq of Pakistan in New Delhi. Agreement to set up a joint commission. Ravi L. Kirloskar, (65) industrialist, dies (Nov. 4). C. Narayana Pillai (80), freedom fighter, writer, journalist and former MP dies in Trivandrum (14). Acharya Vinobha Bhave (88) dies (15). Diplomat K. P. S. Menon (84) dies (21).

Congress led by A. K. Antony merges with Congress-I in Mrs. Gandhi's presence (Dec. 13). Manoranjan Guha, journalist and freedom fighter, dies (16). India and Pakistan agree to set up ministerial level joint commission (23). The 114-year-old English daily, the Madras Mail, ceases publication.

1983: Telugu Desam sweeps to power in Andhra Pradesh; Janata-led front, ahead in Karnataka; CPI (M)-led four-party left front secures absolute majority in Tripura; Janata Party President Mr. Chandra Shekhar starts on his *Bharat Yatra* on foot from Kanyakumari (Jan. 6). Mr. N. T. Rama Rao takes oath as Chief Minister of Andhra Pradesh (8). Eight-member Janata Party Ministry, headed by Mr. Ramakrishna Hegde, takes office in Karnataka (10). Notification issued for electing a 126-member Assam Assembly and 12 members to the Lok Sabha from the State (12). After a break of two years Bharat Ratna awarded to late Sarvodaya leader Acharya Vinoba Bhave (25). P.M. reconstitutes cabinet by appointing two new Cabinet Ministers and five Ministers of State. Piloo Mody (57), politician, dies in Delhi (29). Minister for Shipping and Transport, Mr. C. M. Stephen, resigns to become Cong. (I) secretary.

Mr. Vasantrao Patil sworn in Chief Minister of Maharashtra (Feb. 2). A.P. Government staff-retirement age reduced to 55. The Chairman of the Railway Board M. S. Gujral's services terminated. P.M. drops Ministers A. P. Sharma and B. N. Singh from the Cabinet (14). Governor of Himachal Pradesh, Mr. A. N. Banerji, appointed Karnataka Governor (16). Cong. (I) wins two-thirds majority in Assam Meghalaya Cong. (I) stakes claim for power

(23). Hiteswar Saikia heads new Assam Cong. Ministry, Playwright Tennessee Williams (71) dies (25). 13-member Cong. (I) Ministry assumes office in Assam (28).

Dharamsey Mulraj Khatau (82), doyen among industrialists, dies (Mar. 21). Mrs. Indira Gandhi announces appointment of one-man commission, headed by retired Supreme Court Judge Mr. Justice R. S. Sarkaria, to go into Centre-State relations (24). West Bengal unit of Congress (S) headed by Mr. Priya Ranjan Das Munshi merges with Congress (I).

ONGC stikes oil off Bombay coast (April 1). Cong (I)-led Meghalaya Democratic Front assumes office in Meghalaya. Gen. J. N. Chaudhari (75), former Chief of Army Staff, dies (6). Virbhadra Singh elected Himachal Pradesh Chief Minister (8). "Gandhi" (film) wins 8 Oscars (Apr. 12). Akali Dal launches "army of 100,000 volunteers" as "sacrifice force" (14). SLV-3 launched. Rohini put in orbit (17). Agreement for a Rs. 700-crore scheme to bring Krishna water to Madras signed (19). First bone-marrow transplant in India at the Tata Memorial Hospital in Bombay (23).

Mathura Oil Refinery inaugurated (May 4). Prime Minister Mrs. Indira Gandhi inaugurates work on the Krishna water supply (Telugu Ganga) project for Madras (25). Gen. A. S. Vaidya, GOC-in-C Eastern Command, appointed new Chief of Army Staff (May 31).

Morarji Desai denies having been a CIA agent (June 2). Ruling National Conference wins in Kashmir general election (6). G. D. Birla (89), doyen of Indian industry, dies in London (11). Dr. Farooq Abdullah sworn in Chief Minister of Jammu and Kashmir (12). Congress (I) withdraws support to DMK in Pondicherry coalition (22).

First 235 MW unit of nuclear power station at Kalpakkam goes critical (July 2). Union Cabinet approves special plan for expansion of television network envisaging installation of 112 low power and 13 high power additional transmitters by end of 1984 (6). Former Chief Minister of Himachal Pradesh Ram Lal appointed Governor of Andhra Pradesh (13). Mahadevi Verma, (76) Hindi poetess wins Jnanapith award for 1982 (24).

One-day bandh in Tamil Nadu to protest against killings of Tamils in Sri Lanka (Aug. 2). Dr. Raja Ramanna, Director of Bhabha Atomic Research Centre, appointed Chairman of Atomic Energy Commission and Secretary of Department of Atomic Energy (6). DMK President, Mr. M. Karunanidhi and General Secretary Mr. K. Anbazhagan resign from Tamil Nadu Assembly on Sri Lanka Tamils' issue; Bihar Chief Minister, Dr. Jagannath replaced by Union Minister of State for Energy Mr. Chandrasekhar Singh (10). Indian scientists successfully deploy vital C-band antenna and partially open solar array of INSAT-1B; (31).

Kona Prabhakara Rao, sworn in Lieutenant-Governor, Pondicherry (Sept. 2). INSAT-1B runs into snag, as solar array fails to deploy fully (4). India conferred consultative membership of Antarctica Treaty; Over 100 killed, 98 injured, as multi-storeyed building under construction collapses in Majestic area, Bangalore (12). INSAT-1B overcomes hurdles, successfully completes all deployment manoeuvres, including solar sail (14). INSAT-1B successfully pushed into its (nominal) position in its space home (18). APPLE, India's first experimental communication satellite, ends mission after remaining in space for two years and three months (20). Supreme Court upholds execution of criminals through hanging by rope (23). Mohammad Koya, (56) Dy. Chief Minister, Kerala, dies in Hyderabad (28).

Squadron leader Rakesh Sharma, an IAF test pilot, selected to go into space (Oct. 6). Th Governor of West Bengal, B. D. Pande appointed Governor of Punjab. The first eve trans-Himalayan motor expedition conclude (8). China makes fresh territorial claims in th north-eastern sector of Bhutan (14). Th Union Government takes over management 13 textile undertakings in Bombay; maratho strike in cotton textile industry ends (19). Th Union Government decides to reduce th upper age limit for the Civil Service examin tions from 28 to 26 (22). Avukaderkutti Nal sworn in Deputy Chief Minister of Kerala (2 On the basis of the Menon Committee repo the Prime Minister decides not to give cle ance for the Silent Valley hydro-electric pr ject.

Lakshmi Devadas Gandhi (71), younge daughter of Rajaji and daughter-in-law Gandhiji, dies (Nov. 9).

In Bombay INS Godavari, first frigate fu designed by Indian Navy and built at Mazgao commissioned (Dec. 10). No-trust moti against Cong. (I)-led coalition ministry

jected in Kerala assembly (20). Third Indian expedition lands on Antarctica (27).

1984: Akali Dal (L) President, Harchand Singh Longowal, rejects Home Minister P. C. Sethi's offer to refer Chandigarh and Abohar-Fazilka issues to the Supreme Court. Coconut oil prices reach all time high of Rs. 38 per kg in Kerala (Jan. 2). 71st Session of Indian Science Congress opens in the tribal town of Mesra in Ranchi, Bihar. Filmotsav 84 opens in New Delhi (3). Posts of Village Officers abolished in Andhra Pradesh (5). Andhra abolishes land revenue tax. C. M. Stephen, Congress (I) General Secretary, dies (16).

"Kashmir Liberation Army" kidnaps Mr. R. H. Mahtre, Indian Assistant High Commissioner in Birmingham, who is later killed (Feb. 4). Prime Minister Indira Gandhi, leaves for Moscow to attend the funeral of Soviet leader Yuri Andropov (13). Prime Minister Indira dedicates INSAT I system to the nation (26).

Mother Teresa University inaugurated by Mother herself at Kodaikanal, T. Nadu (Mar. 2). Chandra Sekhar elected President of Janata Party for a third term (6). Controversial Bihar Press Bill withdrawn (7). Aviation fuel tank blows up at the Cochin Refineries leading to devastating fire (8). Three lakh port and dock workers strike paralysing 10 major ports (16). Private sector allowed to manufacture telecommunication, switching and transmission equipment (23). Jagmohan, appointed Governor of Jammu and Kashmir in place of B. K. Nehru, shifted to Gujarat (26).

Jammu and Kashmir Assembly adjourned sine die following walkout by Congress(I) members (Apr. 2). Squadron leader Rakesh Sharma became India's first spaceman, when he was launched aboard Soyuz T-11 spaceship from Baikonur cosmodrome in Kazakhstan along with two Soviet cosmonauts (5). Terrorists in Chandigarh kill Congress(I) MP from Punjab Mr. V. N. Tiwari. Kerala Government decides to drop Silent Valley Project and declares the entire area a national park (13). Tirumalai-Tirupati Devasthanams celebrate Golden Jubilee (22).

Tamil Nadu Government extends noonmeal scheme to 63,000 pensioners (May 1). Prime Minister Indira Gandhi and Nakasone, Prime Minister of Japan, hold talks in New Delhi (4). Phu Dorjee conquers Mount Everest without oxygen (9). Giani Pratap Singh, aged former head priest of the Akal Takht, shot dead by intruders in his house in Amritsar (10).

Sikkim Government headed by Narbahadur Bandari dismissed; Mr. B. B. Gurung, State's Finance Minister, sworn in Chief Minister; Bronze bust of mathematician Srinivasa Ramanujan unveiled at the Madras University (Mar. 11). Ramesh Chandra Chopra, editor-in-chief of the *Hind Samachar* group of newspapers shot dead by extremists in Punjab. Mr. George Bush, the U.S. Vice-President, in Delhi; Mr. M. A. Muthiah Chettiar, (79), Pro-Chancellor, Annamalai University, dies (12). Miss Bachendri Pal becomes the first Indian woman to conquer Mount Everest (23). Centre takes over administration in Sikkim; State Assembly dissolved (25). Dr. Bruno Kreisky, former Chancellor of Austria and Dr. Leopold Sedar Senghor, former president of Senegal given the Jawaharlal Nehru Award for International Understanding for 1983 and 1982 respectively (28).

Army takes control in Punjab to stem terrorist violence. The State declared a restricted area under the Foreigners Act (June 2).

Under *Operation Blue Star* Army forces flush out terrorists in Golden Temple and other religious places (6).

The bodies of Bhindranwale and Bhai Amrik Singh, President of the banned Sikh Students Federation, found in the basement of the Akal Takht in the Golden Temple; Violence in Delhi, Srinagar; Mr. Zail Singh visits Golden Temple (7). Britain apologises to Indira for BBC interview with Dr. Jagjit Singh Chohan (15). Most Gurudwaras thrown open in Punjab (21); Longowal released, arrested again; Former Maharashtra CM A. R. Antulay resigns from Indira Gandhi Pratibha Prathishtan (22). PM visits Golden Temple, meets head priests (23). Jnanapith Award for Masti Venkatesh Iyengar (24). Curfew in Hubli after violence; Golden Temple thrown open to devotees (25). Punjab Governor B. D. Pande and police chief Mr. P. S. Bhinder resign. K. T. Satarawala appointed new Governor (29).

Air Marshal L. M. Katre appointed Chief of Air Staff (July 1). Farooq Abdullah's Ministry dismissed in Srinagar and G. M. Shah sworn in Chief Minister with Congress(I) support; IA Airbus hijacked, lands in Lahore (5). P Bhindranwale Sikh terrorist hijackers su

der; hostages return home (6). White Paper on Punjab released by Union Government (10). External Affairs Minister, P. V. Narasimha Rao, appointed Home Minister. (19). Terrorists breach Bhakra canal in Punjab (21).

N. D. Tiwari replaces Mr. Sripat Mishra as UP CM (August 1). Bomb explosion at Meenambakkam Airport kills 8. S. B. Chavan, Minister without portfolio made Defence Minister (2); Death toll in Madras airport explosion rises to 32 (3). Two Sri Lankans among five arrested for the bomb blast at Madras airport (11). In Andhra Pradesh N. T. Rama Rao's ministry dismissed by Governor Ramlal and Bhaskara Rao sworn in as Chief Minister (16). 71 dead and 104 injured when the Jabalpur-Gondia passenger train plunges into a flooded rivulet; Andhra observes total bandh to protest against the dismissal of Rama Rao Ministry (17). Rama Rao parades 162 MLAs before President Zail Singh; A. P. Sharma elected to Rajya Sabha (21). R. Venkataraman elected eighth Vice-President of India (22). Ramlal resigns as A.P. Governor; Indian Airlines Boeing 737 with 68 passengers and a crew of 6 hijacked to Lahore; The twelve Sikh hijackers of IA Boeing 737 surrender to authorities in the UAE and release all 68 passengers (26).

World Sikh Convention at Amritsar adopts resolution excommunicating President Zail Singh (Sept. 2). Tamil Nadu Food Minister, S. D. Somasundaram, dismissed from State Cabinet. Prof. U. R. Rao, Director of ISRO Satellite Centre, appointed chairman of Space Commission (10). Bhaskara Rao resigns as Chief Minister of Andhra on Governor's demand. N. T. Rama Rao, back as Chief Minister, asked to prove majority in a month. (16). N. T. Rama Rao proves majority in the Assembly (20). Army withdraws from the Golden Temple; Repair of the Akal Takht complete (25). President Giani Zail Singh is exonerated by Sikh high priests (26).

Vice Admiral R. H. Tahiliani appointed Chief of Naval Staff (Oct. 1). Unilateral ceasefire by Mizo rebels ordered by Laldenga (2). Tamil Nadu CM MGR suffers a stroke (Oct. 14). Japanese neurologist arrives to examine MGR (20). New party called Dalit Mazdoor Kisan party formed under the leadership of Charan Singh (21). Laldenga in Delhi for talks to end insurgency in Mizoram (29). Indira Gandhi assassinated by two of her own security guards at her residence in Delhi. Rajiv Gandhi sworn in Prime Minister (Oct. 31).

Violence following Mrs. Gandhi's assassination takes heavy toll (Nov. 2). The body of Mrs Gandhi consigned to flames; Violence continues in New Delhi; Toll rises to 900; Rajiv Gandhi elected Congress(I) President (12). Lok Sabha elections announced for Dec. 2 and Dec. 27; (13). TN assembly dissolved (15). AP Assembly dissolved; N. T. Rama Rao seeks fresh mandate (22). Y. B. Chavan (71), former Deputy Prime Minister, dies (25).

2,500 persons killed and 2,000 badly affected when they inhaled poisonous gas escaping from an insecticide plant in Bhopal (Dec. 3). The chairman of Union Carbide Warren Anderson arrested and released in Bhopal (7). Justice Thakkar- Commission appointed to enquire into the assassination of Indira Gandhi (10). Asoka Mehta, former Union Minister, dies (11). First MIG 27 aircraft assembled by HAL takes off (Dec. 14). MGR has kidney transplant (19); Polling for eighth Lok Sabha and Tamil Nadu Assembly (24). Indian supertanker "Kanchenjunga" sunk in the Gulf (25). Congress (I) sweeps Lok Sabha elections (28). Ramakrishna Hegde Karnataka Chief Minister resigns and recommends dissolution of the Assembly, following the Lok Sabha poll verdict; AIADMK swept back to power (29).

1985: Doordarshan starts Malayalam telecast from Trivandrum (Jan. 1). Gegong Apang sworn in Chief Minister of Arunachal Pradesh (2). Rishang Keishing sworn in Chief Minister of Manipur (4). P. N. Malhotra appointed as CBI Chief (5). Pratapsingh Rane sworn in Chief Minister of Goa (8). Jawaharlal Nehru Award for International Understanding presented to former Austrian Chancellor Bruno Kreisky in New Delhi (11). Balram Jakhar unanimously elected Speaker of the Lok Sabha (14). British film, The Bostonians and a Russian film Ruthless Romance, share the Golden Peacock at the 10th International Film Festival of India in New Delhi (17). Spy ring cracked. Government officials, businessmen held. Dr. P. C. Alexander, principal secretary to PM quits following the arrest of three aides in an espionage case (19). Padma Vibhushan for M. G. K.-Menon, Padma Bhushan for Thakazhi Sivasankara Pillai and Padmasri for P. T. (25). Prime Minister Rajiv Gandhi,

me Minister Andreas Papandreou, Swedish me Minister Olof Palme, Tanzanian Presi-nt Julius Nyerere, Mexican President Miguel la Madrid and Argentinian President Raul lonsin meet in New Delhi and call for the evention of an arms race in outer space, 84 Jawaharlal Nehru award for international nderstanding posthumously conferred on dira Gandhi (28). Anti-defection bill passed the Lok Sabha (30).

Mohammad Azharuddin becomes the first an in cricket history to hit a century in each his first three tests (Feb. 1).

M. G. Ramachandran returns to Madras after eatment in New York (4). Two Kashmiri eparatists sentenced to life imprisonment in irmingham for the murder of Indian diplo-at Ravindra Mhatre there in February 1984 7). M. G. Ramachandran sworn in for a new erm as Chief Minister of Tamil Nadu (10). A ire on M.V. Chidambaram, an Indian liner ealing from Singapore to Madras, kills 34 12). Dr. Nagendra Singh elected world court hief (14). Rajasthan Chief Minister Shiv Char-n Mathur quits, owning moral responsibility or the killing of Raja Man Singh; Heera Lal Deopura sworn in Chief Minister (23).

Rajendra Sethia, the biggest personal bank-rupt ever, arrested in New Delhi (March 1). Mani and Joseph factions of Kerala Congress merge to form a single party (3). Ramakrishna Hegde sworn in Chief Minister of Karnataka, Virbhadra Singh Chief Minister of Himachal Pradesh and Nar-Bahadur Bhandari Chief Minister of Sikkim (8). N. T. Rama Rao sworn in Chief Minister of Andhra Pradesh (9). J. B. Patnaik sworn in Chief Minister of Orissa, Hardeo Joshi Chief Minister of Rajasthan and Vasantrao Patil Chief Minister of Maharashtra; India beats Pakistan by 9 wickets in the final of the Benson and Hedges world championship in cricket in Melbourne. Ravi Shastri is declared champion of champions and Sunil Gavaskar steps down from the captaincy (10). Madhavasinh Solanki sworn in Chief Minister of Gujarat, N. D. Tiwari Chief Minister of Uttar Pradesh and Arjun Singh, Chief Minister of Madhya Pradesh (11). Mohammad Usman Arif appointed Governor of Uttar Pradesh and P. Venkatasubbaiah Governor of Bihar; Bindeswari Dubey sworn in Chief Minister of Bihar (12).

Prime Minister Rajiv Gandhi in Moscow for the funeral of Konstantin Chernenko, meets world leaders; Motilal Vora sworn in Chief Minister of Madhya Pradesh (13). Finance Minister V. P. Singh presents innovative tax reductions and duty exemptions in his maiden budget; M. O. H. Farook sworn in Chief Minister of Pondicherry (16). Indian Airlines offers instant booking with its new computerized system (25). India beats Australia by three wickets in the final of the Rothmans tournament in Sharjah to remain undisputed champs in limited overs cricket (29)

Union Agriculture Minister Buta Singh excommunicated from the Sikh Panth; Mauritian Prime Minister Aneerood Jugnauth in Delhi (April 2). Bombay wins the Ranji Trophy for the 30th time, beating Delhi by 90 runs in the golden jubilee year of the national cricket championship (6). Judicial probe ordered into the riots in Delhi, following Indira Gandhi's assassination. Ban on the All-India Sikh Students Federation lifted (11). Full diplomatic status for SWAPO representative in New Delhi; SPGC chief G. S. Tohra released (19); NAM meet on Namibia adopts in New Delhi a resolution calling for sanctions against South Africa and an action plan to rush more economic and military assistance to SWAPO (21). The Supreme Court awards maintenance to a divorced Muslim woman (23). Lenin Peace Prize posthumously awarded to Indira Gandhi (25). Union Government declares moratorium on 3 banks — Bank of Cochin, Lakshmi Commercial Bank, New Delhi, Miraj State Bank, Rajasthan (27).

S. P. Jogota, former Additional Secretary in the External Affairs Ministry unanimously elected chairman of the International Law Commission (May 1). Adoor Gopalakrishnan adjudged Best Director (Mukhamukham) in national film awards (7).

Bombs that look like transistors explode in and around Delhi, killing more than 80 people; P. N. Bhagawati appointed Chief Justice of the Supreme Court (10). Dr. P. C. Alexander appointed High Commissioner in Britain (18). Communist leader P. Sundarayya dead (20). Prime Minister Rajiv Gandhi visits Moscow and signs two agreements with General Secretary Mikhail Gorbachev (22). J. N. Dixit takes over as India's High Commissioner in Sri Lanka (27); Moore Market destroyed in pre-dawn fire in Madras (30).

tion of the Saharwi Arab Democratic Republic proclaimed by the Polisario rebels fighting the Moroccan Government in the Western Sahara (October 3). Rajiv Gandhi visits Britain. President Zail Singh visits Lakshadweep (14). Prime Minister Rajiv Gandhi visits Haryana and receives the National Order of Jose Marti, Cuba's highest honour, posthumously conferred on Indira Gandhi (21). The Nelson Mandela medal instituted by the Holland committee on South Africa, presented to Rajiv Gandhi at the United Nations, in recognition of India's contribution to the struggle against apartheid (22). Rajiv Gandhi, in New York for the 40th anniversary of the United Nations, holds talks with several world leaders, including President Mohammad Zia-ul-Haq of Pakistan (23). Athletes P. T. Usha and Shiny Abraham win Arjuna Awards (24). Rajiv Gandhi visits the Hague and meets Dutch Queen Beatrix (25). Rajiv Gandhi, flying back from a five-nation tour makes an unscheduled stopover in Moscow and meets General Secretary Mikhail Gorbachev (31).

Preeti Arora retains world arm wrestling title (Nov. 5). Film star Sanjeev Kumar dead; 82 killed in bus accident in Himachal Pradesh (6). Rajiv Gandhi dedicates to the nation the Dhruva research reactor at the Bhabha Atomic Research Centre (11). Over 180 people killed as incessant rain batters Tamil Nadu (13); Punjab Governor Arjun Sigh and Delhi Lt. Governor M. M. K. Wali resign. Andhra Pradesh Governor S. D. Sharma shifted to Punjab, Kumudben Joshi takes his place in Andhra Pradesh. Air-Vice Marshal (Retd.) H. L. Kapur succeeds Wali in Delhi. Vasantrao Patil named Governor of Rajasthan. Doordarshan begins teletex service (14). Arjun Singh sworn in as Union Cabinet Minister for Commerce (15). Acharya Rajneesh returns to India after four-years in the United States (17); PLO Chairman Yasser Arafat meets Prime Minister Rajiv Gandhi in New Delhi (19). Rajiv Gandhi visits Lakshadweep (22). Rajiv Gandhi visits Vietnam (27). Subbash Aggarwal scores 1,788 points to set world record in amateur billiards (28). Three constables sentenced to life imprisonment for murdering Sub-Ispector George Soman at Panoor, Kerala (29).

India wins the Sultan Azlan Shah trophy, beating Pakistan 4-2 in the final of the six-nation hockey tournament in Ipoh, Malaysia (Dec. 3). "Jehova's Witnesses" have to sing the national anthem, rules Kerala High Court (7). Industrialist S. L. Kirloskar arrested and let off on bail (12). Rajiv Gandhi joins the leaders of Greece, Sweden, Tanzania, Mexico and Argentina in a teleconference as part of the UN ceremony at which they are honoured with the 'Beyond War award' (14). Rajiv Gandhi dedicates to the nation the fast breeder test reactor at Kalpakkam (16); Rajiv Gandhi and Pakistan President Zia-ul-Haq meet in Delhi and agree not to attack nuclear plants in each other's country. In Adelaide Sunil Gavaskar hits his 31st test century and becomes the first man to make more than 9,000 test runs (17). Prafulla Kumar Mahanta shifts from a university hostel to the Chief Minister's residence after the Asom Gana Parishad secured an absolute majority in the Assam Assembly elections and elected him leader (24). In Bombay the Congress (I) celebrates the 100th anniversary of the founding of the Indian National Congres (26).

1986: India's first radio mobile telephone and radio paging services commissioned at New Delhi (Jan. 1); Prime Minister, Rajiv Gandhi christens 2.34 metre giant telescope at Kavalur Observatory named after Dr. M. K. Vainu Bappu, founder of the Indian Institute of Astrophysics (7); Pakistan decides to lift 8-year-old ban on private trade with India (10); Union Government declares Ladakh a Scheduled Tribe area under a constitutional amendment order by the President, applying article 342 for the first time to Jammu and Kashmir; MiG-27, an all-weather supersonic strike air craft, inducted into Indian Air Force (11); Indian Airlines creates history when her 44-Seater Fokker Friendship aircraft of IC 258 from Silchar to Calcutta had all women crew. It was commanded by Saudamini Deshmukh and co-pioleted by Nivedita Bhasin (13); General K. M. Kariappa, the first Commander-in-Chief of the Indian Army made Field Marshall (14), Union Government under the orders of Mathew Commission conducts quick de novo limited census in 54 villages in Fazilka and Muktsar tehsils in Punjab to decide whether they should be transferred to Haryana in lieu of Chandigarh (16); Government of India announces 26-year-upper age limit for Civil Service Examinations with effect f[illegible] 198[illegible] (17); Ashok Mitra, West Bengal's [illegible] for Finance and Planning resigns (? Ministers — Arjun Singh, T. Anji[illegible]

Kishore Sharma quit for party work. Arjun Singh inducted into the newly created Congress Vice Presidentship; Rajya Sabha Vice Chairman Mrs. Najma Heptulla also quits to become Congress General Secretary. Anjiah and Kishore made Congress General Secretaries (19); P. Shiv Shankar (Andhra) and Chandrasekhar Singh (Bihar) reinducted into Union Cabinet. Dy. Minister P. Chidambararm (Tamil Nadu) promoted as State Minister. P. A. Sangma appointed State Minister for Labour with independent charge; Pakistan's Special Court sentences 3 Sikh hijackers of Indian Airlines Flight to Lahore in 1984 to death and rigorous life imprisonment (20); Satwant Singh, Balbir Singh and Kehar Singh sentenced to death by Delhi Addl. District & Sessions Judge, Mahesh Chandra for the murder of former Prime Minister, Indira Gandhi on Oct. 31, 1984 (22); 38 persons including 25 foreigners die in fire in five-star Sidharth Continental Hotel in Delhi (23); Social workers Baba Amte, Dr. Avtar Singh Paintal and Kathak exponent Birju Maharaj get Padma Vibhushan in Republic Day honours; Transfer of Chandigarh to Punjab deferred as Mathew Commission fails to demarcate Hindi-speaking areas to be transferred to Haryana (25); Two senior Ministers of State, Chandulal Chandrakar and K. P. Singh Deo implicated in Ram Swarup Spy scandal, resign from the Union Council of Ministers; M. S. Sanjeevi Rao, Chairman of the Electronics Commission resigns (27).

Pope John Paul II arrives in New Delhi for a 10 day-visit to the country; Union Government announces steep hike in prices of petroleum products; Staff Selection Commission sets up Grievances Cells at their headquarters and in their regional offices in Allahabad, Guwahati, Madras and Raipur; General Krishnaswami Sundarji takes over as the new Chief of the Army Staff (Feb. 1); Faziabad District and Sessions Judge orders opening of Ram Janma Bhoomi for unhindered worship; Goa connected to Air India's international network when its Airbus, Q 300-B4 arrived from Kuwait at Dabolim airport (2); Prof. M. G. K. Menon appointed Scientific Adviser to the Prime Minister (3); A 7-member Science Advisory Council, headed by Prof. C. N. R. Rao, Director of the Indian Institute of Science, Bangalore is constituted for two years to advise the Prime Minister (4); Two Indians—Fr. i Chavara Kuriakose Elias and Sister Alphonsa raised to the 'blessed rank' by Pope John Paul II at a function in Kottayam, Kerala (8); Karnataka Chief Minister, Ramakrishna Hegde submits resignation in the wake of High Court judgement in the arrack bottling contract case; Dr. Madhuri Shah, Chairman of U.G.C. retires. Prof. Yashpal appointed successor (11); Ramakrishna Hegde returns to power as Chief Minister of Karnataka; 'Sarbat Khalsa' called at Anandpur Sahib (Punjab) directed the Shiromani Akal Dal and the Shiromani Gurudwara Prabhandhak Committee to clear the Golden Temple (16); Renowned Philosopher, J. Krishna Murthy (90) dies at Ojal in California (17); Ayilam Panchapakesa Venkateshwaran (56) appointed new Foreign Secretary (19); The Supreme Court rules that Christian women in the former Travancore-Cochin State have right for equal share of paternal property; Mrs. Rukmini Devi Arundel, founder of Kalakshetra, Madras, dies (21); M. M. Jacob (Con.-I) elected Deputy Chairman of Rajyasabha; Mail and Express trains fares up; frieght, season tickets left untouched in surplus railway budget; Union Minister of State for Energy, Arif Mohammed Khan resigns in protest against the Muslim Women (Protection of Rights on Divorce) Bill. Dr. A. P. Mitra takes over as Director-General of Council of Scientific and Industrial Research and Secretary, Department of Science (26); Central Budget seeking to implement various elements of long-term fiscal policy with Rs. 467 crore levies and Rs. 3650 crore deficit presented to Parliament by Finance Minister, V. P. Singh (28).

Punjab Chief Minister, Surjit Singh Barnala expands his ministry by inducting five Ministers of State (Mar. 2); Supreme Court bans three Kerala students who refused to sing national anthem from appearing for the annual examination (4); Bombay High Court rules that the MD examination of Bombay University in last October had been manipulated to benefit Maharashtra Chief Minister, Shivaji Rao Patil Nilangekar (6); G. M. Shah Government dismissed in Jammu and Kashmir. Governor's rule imposed; Maharashtra Chief Minister S. Rao Patil Nilangekar, implicated in mark scandal involving his daughter Chandrakala, resigns; Himachal Pradesh Governor Hokishe Sema resigns to contest in Rajya Sabha poll; L. K. Advani elected President of B.J.P. (8); Kerala wins overall championship at

24th National Inter State Athletics, Agartala (9); S. B. Chauhan elected Chief Minister of Maharashtra (11); Congress (I) Minister, M. P. Gangadharan of Kerala resigns following adverse court verdict (12); Veteran Congress leader and Ex-Governor K. C. Abraham dies in Kerala (13); Justice Kirpal Commission concludes that Air India Jumbo jet 'Kanishka' crashed into the Atlantic on June 23, 1985 because of a bomb explosion in its forward cargo hold; India finally decides to buy 21 Westland Helicopters from Britain (14); Internationally wanted criminal Charles Sobharaj and 6 other prisoners escape from Tihar Jail, New Delhi (16); C. Rajeswara Rao (74), unanimously re-elected General Secretary of the Communist Part of India; Atomic Energy Commission reconstituted. Dr. Raja Ramanna to continue to be the Chairman (18); Government of India rejects Union Carbide's offer to pay $350 million as compensation to Bhopal victims (24); Punjab Chief Minister Barnala escapes extremists' attempt in Anandpur Sahib (26); Maharashtra Governor resigns in the wake of being censured by the Bombay and Pune Universities for his alleged interference with affairs of the universities of the State (27).

Sidhartha Shankar Ray appointed Governor of Punjab in place of Dr. Shankar Dayal Sharma who is transferred to Maharashtra; Vice-Admiral R. K. S. Gandhi appointed Governor of Himachal Pradesh; Romesh Bhandari, former Foreign Secretary, who joined Cong. (I) appointed Chairman of the party's Foreign Relations Department (Apr. 1); Central Government announces excise benefits for small units; A new panel-Justice Venkataramaiah Commission – appointed to determine the Hindi speaking areas in Punjab to be given to Haryana in lieu of Chandigarh (3); Milon Kumar Banerjee, first Additional Solicitor General appointed Solicitor General of India (4); International criminal Charles Sobhraj and David Hall, his associate, nabbed at Mapusa in Goa (7); 'University of Health Sciences', the first Medical University in the country, inaugurated in Vijayawada (8); Baba Amte declares war for peace on completion of the 'Bharat Jodo' (Knit India) movement from Kanyakumari to Kashmir (12); 46 people killed in stampede at Mahakumbha Mela at Hardwar (14); Veteran Congress leader Atulya Ghosh, 83, dies in Calcutta (18); Fourth Pay Commission finalises recommendations that will entail an expenditure of Rs. 2200 crore (19); Air India's first Airbus A310-300, 'Yamuna' arrives in Bombay (20); New national education policy unveiled in Parliament. France Albert Rene, the President of Seychelles, arrives for a 6-day visit to India (21); New policy advisory committee headed by G. Parthasarathy appointed (26); Congress (I) expells former Union Minister, Pranab Kumar Mukherjee from party for 6 years and suspends former Chief Minister of UP Sripat Mishra, former Union Minister A. P. Sharma and former Assam Governor Prakash Mehrotra from party (27); Malayalam Film 'Chidambaram' directed by G. Aravindan wins best feature film award and Shyam Benegal bags the Best Director award for the Hindi film 'Trikal' in the 33rd national film awards for 1985; West German Chancellor Helmut Kohl arrives for a 4-day official visit to India (28); Overseas airmail rates shoot up following decisions at Hamburg Congress of Universal Postal Union; Five-member Panthic Committee announces formation of 'Khalistan' (29); Security forces raid Golden Temple to clear the area of extremists and secessionists — holds 150; Chandra Sekhar re-elected President of Janata Party for the tenth year in succession (30).

Controversial Muslim Women Bill passed by Lok Sabha amidst stiff resistance by the opposition (May 5); The nonagenarian social worker who devoted his life to the cause of lepers, Dr. Shivajirao Patwardhan, 94, dead (7); Tenzing Norgay, (72) who scaled the Everest first with Edmund Hillary 33 years ago, dies at Darjeeling (9); Union Cabinet expanded. External Affairs Minister B. R. Bhagat dropped. Buta Singh made Home Minister (12); Prime Minister Rajiv Gandhi leaves for Lusaka on the first leg of his 5-day tour of the 4 African frontline states of Zambia, Zimbabwe, Angola and Tanzania; New York District Federal Court Judge, Mr. John F. Keenan remits Bhopal gas case to India with the condition that Union Carbide should abide by the ruling of the Indian courts (13); Tamil Nadu Assembly votes to scrap Upper House.; Karunakaran shuffles cabinet. Vayalar Ravi resigns after he was stripped of his Home Portfolio; Veteran film maker V. Shantaram, 75, chosen for the Dada Saheb Phalke award (16); Sikh head-priests order Punjab Chief Minister, Surjit Singh Barnala to dust shoes at any gurudwaras for one week as a punishment for the policy

action in the Golden Temple; India decides to open diplomatic office in Luanda, Angola after Prime Minister Rajiv Gandhi's official visit there; Dr. K. L. Rao, 84, former Union Minister for Irrigation and Power and an international authority on Dams, dies (18); The pro-government Janata Party attains absolute majority in Bangladesh Parliamentary elections (19); T. N. Kaul, former Foreign Secretary, appointed Ambassador to the Soviet Union (20); Prime Minister sets up a Punjab Advisory Board with former [illegible] Ram as head; The first [illegible] (South West African People's Organization) opened in New Delhi by its President Sam Nujoma (24); R. Balakrishna Pillai, once dropped from Karunakaran Ministry in Kerala because of his controversial statement on 'Punjab model agitation' reinducted (25); Excise Minister N. Srinivasan of Kerala resigns when Kerala Public Men (Prevention of Corruption) Commission found prima facie case in the allegations against him (30); Flute exponent T. R. Mahalingam dies at the age of 60; Plot to blow up Air India's New York — Delhi jet foiled (31).

Bhajan Lal resigns as Haryana Chief Minister and Union Transport Minister Bansi Lal chosen to succeed him (June 4); Thachadi Prabhakaran and Ramesh Chennithala inducted into the Kerala Cabinet (5); A tripartite meeting convened by the Union Government decides to transfer Chandigarh to Punjab in principle, but the Haryana Government will continue to function there for up to five years; Jnanapith award winner, Dr. Masti Venkatesha Iyengar, 95, dies in Bangalore (6); First AIDS death reported from a private hospital in Bombay, the victim being a businessman who received blood transfusion for a bypass heart surgery in 1980 (9); Justice Venkataramiah Commission recommends that 7000 acres of land be given to Haryana in lieu of Chandigarh and a new commission be appointed to select the area (10); 100 crore excise and customs relief to industry announced by the Finance Minister, V. P. Singh (11); Charan Singh, takes over as Lok Dal Secretary; Dr Amiya Chakravarthy, 86, poet and scholar and former literary secretary to Rabindranath Tagore, dies at Shantiniketan (12); Prime Minister Rajiv Gandhi launches Clean Ganga Project at Varanasi (14); The Union Government appoints a commission headed by Justice D. A. Desai to identify 70,000 acres of land to be transferred to Haryana in lieu of Chandigarh. Punjab Cabinet rejects the Commission (20); Bharatiya Janata Party leader Atal Bihari Vajpayee and seven Congress (I) candidates declared elected unopposed to the Rajya Sabha (21); Marxist Party ousts Kerala M.L.A. M. V. Raghavan from party (23); Union Government sanctions maternity leave for unmarried women employees too; Minor portfolio shuffle at Centre (24); Accord with Mizo National Front, Laldanga to be Chief Minister; Space Scientist Dr. Vasant R. Gawarikar, 53, appointed Secretary, Science & Technology Department (25); Congress (I) wins 30 seats out of 45 in Rajya Sabha poll (28); Karnataka Chief Minister Ramakrishna Hegde reconstitutes cabinet, dropping 17; Akali dissidents decide to form new Party (29); Mizoram accord signed after protracted negotiations spread over six years, aiming at ending insurgency in the Union territory; Fourth Pay Commission recommends substantial increase in pay and allowances to nearly 5.2 million central government employees (30).

Andhra Pradesh Government goes back to six-day week; C. G. Somiah, I.A.S. takes over as new Union Home Secretary (July 2); Union Government increases interest rate on the Employees Provident Fund from 10.15 per cent to 11 per cent (3); Akali Dal split becomes formal when the break-away group elected Mr. Prakash Singh Badal as its President and 'expelled' Mr. Surjit Singh Barnala from the party (5); Jagjivan Ram, 78, passes away (6); Communal violence in Ahmedabad following the traditional chariot procession of Lord Jagdish, Subhadra and Balbhadra — about 20 killed; Union Petroleum Minister, Chandrasekhar Singh, 60, dies; Gujarati writer Pannalal Patel wins the Jnanapith Award for 1985 (9); India protests against China's intrusion of six to seven km into the Indian territory in Arunachal Pradesh (15); Former Karnataka Chief Minister, R. Gundu Rao expelled from Congress Party for six years for anti-party activities; U.P. Chief Minister orders enquiry into the reported loss of eyesight of nearly 300 people following operations conducted by a Jaipur-based doctor in eye-camps in Khurja and Moradabad towns in April; Government bans administering aspirin to children below 12 years of age (18); India withdraws from Edinborough Commonwealth Games (20); The Supreme Court orders all-

India test for medical seats; B. G. Deshmukh selected to be the Cabinet Secretary (21); The seventh round of the Sino-Indian border talks concludes without resolving the issue; Pratap Kishan Kaul, Cabinet Secretary appointed India's Ambassador to the U.S. (23); Terrorists gun down 15 bus passengers at Muktsar in Punjab (25); Army called out to quell mass rioting in Delhi (26); Army called out in Kalimpong, Darjeeling district as the Gorkha National Liberation Front sponsored agitation for 'Gorkhaland' took a violent turn, 9 die (27); Government announces further customs and excise relief for a number of items including food-stuffs and fertilisers and also restore pre-budget exemptions in the case of certain others (29); Acharya Rajneesh returns to India from Portugal, disillusioned about the outside world (30).

Amnesty scheme for evaders of indirect taxes announced (Aug. 1); Prime Minister, Rajiv Gandhi arrives in London for 3-day mini Commonwealth Summit (3); Bhaskar Ghosh I.A.S., appointed Director General of Doordarshan in place of Harish Khanna, who retired (4); Prof. Nurul Hassan appointed Governor of W. Bengal in place of Uma Shankar Dixit; Lok Sabha passes constitution 53rd Amendment bill conferring statehood to Mizoram; Government admits that China has built a helipad on the Indian side of the Mc Mahon line; The first wholly Indian test-tube baby born to 23-year old Mrs. Shyamji Chawda, at the KEM hospital, Bombay (7); Gen. A. S. Vaidya who was Chief of Army Staff at the time of 'Operation Blue Star' shot dead at Pune (10); Singing National Anthem is not obligatory—rules Supreme Court in the 'Jehovahs Witnesses' case; Kathmandu selected to locate the Secretariat of the SAARC; Tarsem Singh Kohar, the prime accused in Muktsar bus killings arrested in Punjab (12); Parliament approves the government resolution to invoke Article 249 of the Constitution and empower Parliament to legislate on certain State matters to deal with terrorism along the border areas (13); Rain-swollen Godavari causes havoc in Andhra Pradesh. More than 100 killed. Prime Minister announces Rs. 30 crore aid (17); A restructured 20-point programme announced (20); Nine-member Cong.-MNF coalition ministry headed by the MNF President Laldenga sworn in Aizawl; Andhra flood toll nears 175; Government drops plan for Security Belt (21); The Supreme Court directs the petition moved by the Attorney General, K. Parasaran, challenging the verdict that no person can be forced to sing the national anthem, to the Full Bench; Former Karnataka Chief Minister R. Gundu Rao launches new party — Indian National Congress (Indira Gandhi); Sobha Singh, the renowned Punjabi Painter dies (22); Congress (J) merges with Congress (I) (25); Sunderlal Bahuguna, V. B. Salunke and Mrs. Vasantibehen get Jamnalal Bajaj award (26); The Central Government curbs the use of aspirin and formulations containing salicylates by children below 12 (27); President Zail Singh lays the foundation stone for the Lakshmibai National College of Physical Education at Trivandrum (28).

LIC announces three new schems and cuts premium on its 30th anniversary celebrations (Sept. 1); Tamil Nadu Chief Minister M. G. Ramachandran leaves for the US for medical check up; Dr. Verghese Kurien wins 1986 Carnegie Peace Prize; India protests to UK about visa restrictions (3); National Awards for 186 school teachers on the eve of the 25th anniversary of Teachers' Day; Union Government files compensation case against Union Carbide Corporation of America in Bhopal Court (5); Union Government agrees to implement new pay-scales from January 1, 1986; President's rule imposed in J&K for 6 months (6); Dr. Madhuri Shah wins 1986 Nehru Literacy Award (8); The dissident Akali leaders, Mr. Prakash Singh Badal and Mr. G. S. Tohra released from Tihar jail; Prime Minister Rajiv Gandhi receives Nicaragua's highest award, the Augusto Caesar Sandino Order from its President Daniel Ortega at New Delhi (10); India signs agreement with the Soviet Union to launch her fourth satellite—1000 kg remote sensing satellite IRS-IA – from the Baikanoer Cosmodrome in mid-September, 1987 (15); Ratan Tata and Rahul Bajaj appointed Chairmen of Air India and Indian Airlines boards respectively; Prof. M. G. K. Menon, Scientific Adviser to Prime Minister and member, Planning Commission has been elected President of International Council of Scientific Unions (19) R. K. P. Shankar Das, a senior advocate of the Supreme Court, elected President of the International Bar Association; Mani Madhava Chakyar gets Tulasi Award of Rs. 1 lakh, instituted by Govt. of Madhya Pradesh (21); The Vice-President R. Venkataraman leaves for Botswana to attend the Frontline States' 20th Independence celebration (28); Pilot averts major accid

Airbus in Madras—195 escape (29); P. T. Usha, India's sprint queen, wins the first gold for India in Seoul Asiad (30).

Swami Ranganathananda of Ramakrishna Mission chosen for the Indira Gandhi Award for National Integration (Oct. 1); Rajiv Gandhi escapes attempt on life at Rajghat ceremony (2); The Director General of Punjab Police, J. R. Ribeiro escapes terrorist attack (3); Miss. Neerja Mishra, Chief Airhostess of the Pan Am Jetliner hijacked at Karachi, is awarded Ashok Chakra, the country's highest honour for bravery, posthumously (4); Helicopter Corporation of India inaugurated by Prime Minister at Bombay (5); King Hussain of Jordan arrives in Delhi on official visit; MGR takes over the post of AIADMK General Secretary; M. S. Swaminathan, Director-General of IRRI, Manila, gets the 1986 Albert Einstein World Award of Science for outstanding scientific contribution and life-long dedication to Science (6); Kerala Government announces Rs. 3 lakh and car for P. T. Usha (9); Prime Minister Rajiv Gandhi leaves for Jakarta on a four-nations tour of Indonesia, Australia, Newzealand and Thailand (13); P. C. Sethi suspended from primary membership of the Congress Party (16); T Anjiah, 57, former Chief Minister of Andhra Pradesh, dies (18); Tamil Nadu Cabinet reshuffled. 10 Ministers including Veerappan and Hande dropped (21); Union Cabinet reshuffled, Arjun Singh becomes Communication Minister. Arun Nehru out (22); Foundation laid for 'Seabird', South Asia's biggest naval-base at Karwar in Karnataka (24); Hokishe Sema, M P. recalled to Nagaland to become Chief Minister when S. C. Jamir resigned; The SAARC conference on South Asian Children at New Delhi calls for a covenant on children (29); President Zail Singh arrives in Belgrade on the first leg of a 12-day three-nation tour. Prime Minister Rajiv Gandhi announces that no sick industry will be taken over by the government in future (30); Tamil Nadu Legislative Council abolished (31).

Waryam Singh Khapianwali, the man behind Muktsar massacre killed in Punjab (Nov. 2); Dr. Farooq Abdulla takes over as Chief Minister of J&K coalition government of National Conference and Congress (I). Assembly dissolved on CM's advice (7); 'Apna Utsav', the country's first national cultural festival opens in New Delhi (8); Kamalapathi Tripathi resigns from the post of Working President of Congress (I) (12); Mrs. Pratibha Patel elected Dy. Chairman of Rajya Sabha (18); Parliament approves bill to tighten citizenship laws to prevent clandestine influx of foreigners (19); Kerala High Court declares the reinduction of Mr. R. Balakrishna Pillai into the state cabinet unconstitutional (21); The Union Government claims Rs. 3,900 crore from the Union Carbide Corporation as damages in Bhopal District Court (22); Punjab wins 11th National Sports Championship for women at Chandigarh (23); Seven DMK MLAs disqualified from membership by the Speaker on the ground that they violated the oath by burning copies of the constitution; Soviet leader Gorbachev arrives in New Delhi on a four-day official visit (24); Rajiv and Gorbachev in a joint declaration call for nuclear arms ban (27); Telecom., postal rates hiked (28); Sharad Pawar group of Congress (S) decides to join Congress (I). (29); In Punjab, Gurucharan Singh Tohra elected SGPC Chief, candidate of Chief Minister Barnala defeated (30).

Punjab terrorists kill 24 bus passengers at Khudda Village in Hoshiarpur District; The eighth World Congress of International Economic Association opens in New Delhi. Prof Amartya Sen (India), Drummond Professor of Political Economy at the Oxford University elected President (Dec. 1.); The Delhi High Court confirms the death sentence imposed on Indira assassins, Satwant Singh, Balbir Singh and Kehar Singh (3); Former Assam Chief Minister, Hiteshwar Saikia appointed Lt. Governor of Mizoram (4); Envelope to cost 60 paise in the second postal rate hike in a fortnight; The Vice-Chancellor of Cochin Varsity, Dr. K. Gopalan resigns in protest against the new restrictive legislation for the University (5); Lok Sabha passes Constitution 55th Amendment Bill conferring full statehood to Arunachal Pradesh; The Congress (S) which broke away from the Congress (I) about 8 years ago, reunited with the party in Aurangabad Session; MGR announces formation of a Medical University in Tamil Nadu (8); Parliament passes the Consumer Protection Bill and seven other related bills (10); Delhi rejects China's protest on Arunachal being conferred full statehood (12); The Vice President R. Venkataraman inaugurates the 400th anniversary celebrations of Narayaneeyam by Melpathur Bhattathiri at Guruvayur (13); Film actress Smitha Patil (39) dies of brain hemorrhage (14); No-trust move against Barnala fails to take off in Punjab (15).

HE CONSTITUTION

he Constitution of India came into effect 26th January 1950. It was drawn up by a ıstituent Assembly initially summoned on :9, 1946. The constitution was adopted on /ermber 26, 1949.

he Constituent Assembly was initially sumned for undivided India. With the partition India in June 1947, the delegates of the istan areas ceased to be members of the embly. On August 14, 1947, the Constituent embly met again as the Sovereign Constint Assembly for the Dominion of India ler the Presidentship of Sachidananda ha. On the demise of Sinha, Dr. Rajendra sad became the President of the Assembly. ıraft Constitution was published in February 18. The Constitution was finally adopted on h Nov. 1949. It came into effect on 26th Jan. 50.

The Indian Constitution closely follows the itish Parliamentary model but differs from it one important respect. In Britain, the liament is supreme. No court can question validity of any law passed by the British liament. In India the Constitution is supne; not the Parliament. So the Indian courts vested with the authority to adjudicate on constitutionality of any law passed by liament.

This position, otherwise clear, was complied by the action of the Constituent Assem itself. Having promulgated the Constitun, the Constituent Assembly converted itself o the first Indian Parliament. Thus the eator of the constitution, the Constituent sembly, became the creature of the constitun, the Parliament. In the very second year of omulgating the constitution, the first Parliaent set out amending it. This was the *First onstitution) Amendment Act, 1951.* This nendment planted the seeds of future troues between the Parliament and the Judiciary. clearly showed that the Parliament posses-d both constituent and legislative powers. ıbsequent Parliaments naturally claimed enary powers to amend the constitution, in ıy manner they thought fit.

The powers claimed by Parliament, on the ıe hand, and the rights vested in the diciary, on the other, were bound to clash in the long run. The conflict at first centred round specific provisions of law passed by Parliament. When any such provision was declared unconstitutional, the laws were either amended to suit the constitution or the constitution was amended to suit the laws. Such a course naturally precipitated the question whether Parliament possessed unlimited powers to amend the constitution.

The question came up in the Keshavananda, Bharati case (1973) where the Supreme Court ruled that the power of amendment vested in the Parliament under Art 368 (relating to amendment of the constitution) cannot be so exercised as to alter or destroy the basic structure of the constitution If Parliament had the power to destroy the basic structure of the constiution, it would cease to be a creature of the constitution and become its master.

The question came up again in the Minerva Mills case, after the 42nd amendment was passed. The 42nd amendment effected a constitutional revolution, whereby Parliament overthrew the supremacy of the constitution and made itself supreme in its stead. The first question before the court was whether the Parliament had unbounded powers to amend the constitution

The Supreme Court delivered its judgement in the Minerva Mills case on May 9, 1980. The court held that the Parliament cannot expand its amending power under Art. 368, so as to abrogate the constitution or to destroy its essential feature. Their Lordships observed. "The donee of a limited power cannot by exercise of that power convert the limited power into an unlimited power". The avowed purpose of the 42nd amendment was to remove doubts.

constitution, that is to say, destroy democracy and substitute for it a totally antithetic form of government."

Another question before the Court was whether the Parliament had the power to bar the jurisdiction of the court to enquire into the constitutional validity of laws. On this question the court ruled that "Our constitution is founded on a nice balance of power among the three wings of the State, namely the Executive, the Legislature and the Judiciary. It is the function of Judges, nay their duty, to pronounce upon the validity of laws."

"Human dignity" (sic), the court observed, "has not yet devised a system by which the liberty of the people can be protected, except through the intervention of courts of law". Again, "The conferment of the right to destroy the identity of the constitution, coupled with the provision that no court of law shall pronounce upon the validity of such destruction, seems to us a transparent case of transgression of the limitations on the amending power."

A third question which the court had to consider was the precedence of Directive Principles over Fundamental Rights. This question was first projected by the 25th amendment. This amendment gave precedence to two clauses of Directive Principles as against Fundamental Rights. They are Art. 39(b) which related to the ownership and control of the material resources of the community and Art. 39(c) which concerned the question of concentration of wealth in a few hands to the detriment of the community.

The court conceded the application of the principle to the two clauses in question. In the 42nd amendment, this precedence was extended to all the Directive Principles. The court objected to this extension and ruled that "to destroy the gurantees given by Part III (Fundamental Rights) in order purportedly to achieve the goals of Part IV (Directive Principles) is plainly to subvert the constitution by destroying its basic structure".

So far only the three points mentioned above have been identified as Basic Features of the constitution. What the other basic features (if any) are, remains to be elucidated.

The Constitution consists of the following: 1. The Preamble. 2. Parts I to XXII covering Articles 1 to 395. 3. Schedules 1 to 10 * 4. An Appendix‡.

The Preamble declares India a sover *Socialist Secular* Democratic Republic and down the primary objects of the constitu namely, to secure to all citizens justice, so economic and political, liberty of thou expression, belief, faith and worship, equ of status and opportunity and fraternity as ing the dignity of the individual and the u and the integrity of the nation.

The words *'socialist, secular'* and *'the u* and *the integrity of the nation'*, were adde th 42nd Amendment.

Structure. India, that is Bharat, shall b Union of States (Art. 1). The States Territories thereof shall be as specified in first Schedule (Art.2).

Distribution of Powers. The Union exclusive power to make laws on all matte List I of the Seventh Schedule (Union L The States have exclusive power to make l on all matters in List II (State List). The Un and States have concurrent powers to legis on any matter enumerated in List III (Con rent List) (Art. 246).

Residuary Powers. The Union has exclu power to make laws on any matter enumerated in the Concurrent List or State (Art. 248).

Over-riding Powers. In case of any con between Union laws and State laws, the Un laws shall prevail (Art.254).

Citizenship. Citizenship rights are give every person who is born in India or eithe whose parents was born in India or who been a resident of India for 5 years, mediately preceding the commencemen the Constitution.

The Constitution of India commenced the 26th January 1950.

Seven *Fundamental Rights* are grante citizens under Arts. 12 to 35 of the Constitu (Part II). They are: 1. Right to Equality, 2. R to Freedom, 3. Right Against Exploitatio Right to Freedom of Religion, 5. Cultural Educational Rights, 6. Right to Property an Right to Constitutional Remedies, that is to all citizens are guaranteed the right to m

* Schedule 10 was omitted by 36th Amendment, bu added again in 1985 by the 52nd Amendment.

‡ Appendix contains the order extending the applicati the constitution to Jammu & Kashmir.

the Supreme Court or the High Courts by appropriate proceedings for the enforcement of Fundamental Rights.

The 16th and 24th Amendments have considerably limited the exercise of Fundamental Rights. Two, in particular, (the Right to Freedom and the Right to Property) have been reduced to names by the 1st, 4th and 24th amendments. The State is empowered to pass laws imposing reasonable restrictions on the exercise of these two rights.

The Directive principles of state policy are contained in Arts. 36 to 51 of the Constitution (Part IV). These lay down 19 objectives covering a wide range of subjects, which the State shall endeavour to achieve. These are not enforceable at law like Fundamental Rights. Nevertheless, they are declared fundamental to the governance of the country.

Subsequent amendments starting with the 25th have attempted to give precedence to Directive Priciples over Fundamental Rights. The 25th amendment restricted such precedence to two objectives, contained in cl. (b) and (c) of Art. 39. They relate to the equitable distribution of material resources and the concentration of wealth in the hands of a few to the detriment of many. These, it may be noticed, were already secured by the amendments to Fundamental Rights which empowered the State to impose reasonable restrictions to the right to property. The 42nd amendment sought to extend this precedence to all objectives specified in Directive Principles. This provision was struck down by the Supreme Court (see supra.)

There shall be a *President of India* (Art. 52) who is the Executive head of State—[Art. 53—(1)]—and the Supreme Commander of the Armed forces Art. 53(2). The President shall be elected from an electoral college consisting of (a) the elected members of both Houses of Parliament and (b) the elected members of the Legislative Assemblies of the States (Art. 54). The President shall hold office for five years Art. 56(1) and is eligible for reelection (Art. 57).

The Vice-President shall be elected by the members of an electoral college consisting of the members of both houses of Parliament Art. 66(1). The Vice-President may hold office for five years (Art. 67), and shall be the ex-officio Chairman of the Council of States (Art. 64).

There shall be a *Council of Ministers* with the Prime Minister at the head to aid and advise the President in the exercise of his functions—[Art. 74(1)]. The Prime Minister shall be appointed by the President, and the other Ministers shall be appointed by the President, on the advice of the Prime Minister—Art. 75(1). The Ministers shall hold office during the pleasure of the President—Art. 75(2). The Council of Ministers (as at present constituted) consists of the Prime Minister and. (1) Ministers who are members of the cabinet, (2) Ministers of State (Union Ministers) who are not members of the cabinet and (3) Deputy Ministers.

A Secretary to Government is the *administrative head* of a ministry and the principal adviser of the minister. When the volume of work in a ministry exceeds the manageable charge of the Secretary, one or more wings may be established under a Joint Secretary. A ministry is divided into divisions, branches and sections functioning under Deputy Secretaries, Under Secretaries and Section Officers respectively.

There shall be a *Parliament* for the Union, which shall consist of the President and two Houses, the Council of States (Rajya Sabha) and the House of the People (Lok Sabha)—Art 79.

The Council of States shall consist of not more than 238 elected representatives of States and Union Territories and 12 members to be nominated by the Presdient (Art. 80). The House of the People shall consist of not more than 500 members chosen by direct election from territorial constituencies in States and not more than 25 members to represent Union Territories (Art. 81).

The Council of States shall not be subject to dissolution but as nearly as possible one-third of its members shall retire, as soon as may be, after the expiry of 2 years. The House of the People shall continue for 5 years (unless sooner dissolved) from the date of its first meeting and no longer and the expiry of the said period of five years shall operate as dissolution of the House (Art. 83). This mandatory provision of dissolution may be extended for a year due to emergency.

The following committees are appointed to assist the Parliament in its deliberations: 1. Public Accounts Committee, 2. Estimate Com-

mittee, 3. Public Undertakings Committee, 4. Committee on Government Assurances.

In a presidential system of government like that of the USA, the three branches of government—the Legislature, the Executive and the Judiciary—are independent units. But in a Parliamentary system like that of India the Executive is subordinate to the Legislature. The Judiciary alone functions as an independent branch.

Chapter IV Part IV of the Constitution deals with judiciary. There shall be a *Supreme Court of India,* consisting of a Chief Justice of India and other Judges: Art. 124(1). The parliament has the power to increase the number of judges.

A judge of the Supreme Court is to be appointed by the President after consultation with the Chief Justice of the Supreme Court and shall hold office until the age of sixty-five and can be removed from office by the President, only after an address by each house of Parliament supported by more than two-thirds majority of members present and voting.

The Supreme Court has both original and appellate jurisdiction The original jurisdiction is limited to questions between the Government of India and the States, or between the States inter se and to such other questions involve "the existence or the extent of a legal right" (Art. 131). The Appellate Jurisdiction extends over all the High Courts in India (Art. 132).

The Attorney General. The President shall appoint a person who is qualified to be appointed as a judge of the Supreme Court, to advise the Government of India on legal matters (Art. 76). He has the right to speak and take part in the proceedings of either House and to be a member of any Parliamentary Committee but is not entitled to vote (Art. 88).

There shall be a *Comptroller and Auditor General of India* who shall be appointed by the President. He shall only be removed from office in like manner and on the like grounds as a Judge of the Supreme Court (Art. 148)(1). He exercises a general control over the accounts of the Union and State Governments Art. 149). He is not eligible for further office either of the Union or State governments, once he has retired [Art. 148(4)].

Election Commission is to supervise and control all matters relating to elections to t Parliament and State Assemblies and to t offices of the President and Vice-Preside (Art. 324). The Election Commission m consist of the Chief Election Commission and such other Election Commissioners as t President may appoint from time to tim When any other Election Commissioner appointed, the Chief Election Commission shall function as the Chairman of the Electi Commission. The Chief Election Commissic er cannot be removed from office except the same manner and on the same grounds a judge of the Supreme Court (Art. 324)

The system of *Government in States* clos follows the pattern of the Union Governme The expression 'State' does not include t State of Jammu and Kashmir, unless otherwi indicated (Art. 152).

The Governor of a State is the Executi head of the State government (Arts. 155 a 156). He is assisted by a Council of Ministe with the Chief Minister at the head (Art. 16 The Chief Minister is to be appointed by t Governor and other Ministers are to appointed on the advice of the Chief Ministe

The Legislature of a State shall consist of t Governor and one or two houses of legis ture, as the case may be (Art. 108). T following States have two Houses, the Legis tive Council (Vidhan Parshad) and the Legis tive Assembly (Vidhan Sabha); Bihar, Madh Pradesh, Maharashtra, Karnataka and UP. T Legislative Assembly of a State may consist not more than 500 and not less than members (Art. 170). The total number. members in the Legislative Council, if a shall not exceed one-third of the total numb of members in the Assembly (Art. 171).

There shall be a High Court for each Sta consisting of a Chief Justice and such oth judges as the President may appoint (Arts. 2 and 216). A judge of the High Court can removed from office by the President, in t same manner as he may remove a judge of t Supreme Court (Art. 217). The High Cou have original jurisdiction in such matters writs and appellate jurisdiction over all su ordinate courts in their jurisdiction.

Every state shall have an *Advocate Gene* to advise the Government on legal matt (Art. 165).

The *Union Territories* ordinarily have

Council of Ministers or legislatures of their own. But the Parliament may *by law* create for any of the Union Territories a body, whether elected or partly elected and partly nominated to function as a legislature for the Union Territory or a Council of Ministers or both (Art. 239A).

Article 343 of the Constitution provides that the official language of the Union shall be Hindi in the Devanagari script and the form of numerals for official purposes, shall be the international form of Indian numerals; in other words, the Arabic numerals. English, which was originally to continue as the official language only upto Jan. 26, 1965, will under the Official Languages Act, 1963 continue to be used even after that date in addition to Hindi.

Art. 368 deals with *amendment of the Constitution*. A Bill for Amendment must be passed in each House by a majority of the total membership of that House and by a majority of not less than two-thirds of the members present and voting.

Amendments to certain parts of the Constitution, however, require ratification of the Legislatures of not less than one-half of the States by resolutions to that effect.

There are *Ten Schedules* to the constitution, the ninth being added by the First Amendment to the constitution in 1951 and the 10th by the 52nd Amendment in 1985.

First Schedule (under Articles 1 and 4) gives a list of the States and Territories comprising the Union.

States: 1. Andhra Pradesh, 2. Assam, 3. Bihar, 4. Gujarat, 5. Kerala, 6. Madhya Pradesh, 7. Tamil Nadu, 8. Maharashtra, 9. Karnataka, 10. Orissa, 11. Punjab, 12.Rajasthan, 13. Uttar Pradesh, 14. West Bengal, 15. Jammu and Kashmir, 16. Nagaland, 17. Haryana, 18. Himachal Pradesh, 19. Manipur, 20. Tripura, 21. Meghalaya, 22. Sikkim.

Union Territories: 1. Delhi, 2. Andaman and Nicobar Islands, 3. Laccadive, Minicoy and Amindivi Islands*, 4. Dadra and Nagar Haveli, 5. Goa, Daman and Diu, 6. Pondicherry, 7. Chandigarh, 8. Mizoram, 9. Arunachal Pradesh.

Second Schedule under Arts. 59(3), 65(3), 75(6), 97, 125, 148(3), 158(3)] consists of 5 Parts A to E.

Part A fixes the remuneration and emoluments payable to the President and Governors. The following emoluments per mensem shall be paid to the President: Rs.10,000. Governor of State: Rs.5,500. The President and the Governors of the States shall also be paid such allowances as were payable respectively to the Governor General of India and the Governors of the corresponding provinces immediately before the commencement of this Constitution. *Part B* has been deleted by the Constitution (Seventh Amendment) Act of 1956. *Part C* contains provisions as to the Speaker and the Deputy Speaker of the House of the People and the Chairman and the Deputy Chairman of the Council of States and the Speaker of the Legislative Assembly and the Chairman and the Deputy Chairman of the Legislative Council. *Part D* contains provisions as to emoluments of the judges of the Supreme Court and of the High Courts. Chief Justice of the Supreme Court Rs.5,000 per month. Any other judge of the Supreme Court Rs.4,000 per month. Chief Justice of High Courts Rs.4,000 per month. Any other judge of High Courts Rs.3,500 per month. *Part E* contains provisions as to the Comptroller and Auditor General of India. Pay Rs.4,000 per month.

Third Schedule (under Arts. 75(4), 99, 124(6), 148(2), 164(3), 188 and 219) contains forms of *Oaths and Affirmations*.

Fourth Schedule [under Arts., 4(1) and 80(20)] allocates seats for each State and Union Territory, in the Council of States.

Fifth Schedule [under Art. 244(1) provides for the administration and control of Scheduled Areas. This schedule provides for amendment by a simple majority of Parliament and takes it out of the ambit of Art. 368 (Amendment of the Constitution).

Sixth Schedule [under Arts. 214(2) and 275(1)] provides for the administration of Tribal Areas in Assam, Meghalaya and Mizoram. This is a lengthy schedule which goes into the details of the administration in the Tribal Areas concerned. This schedule can also be amended by a simple majority of the Parliament.

Seventh Schedule (under Art. 246) gives three Lists: *1. Union List* contains 97 subjects in which the Union government has exclusive authority. *2. State List* contains 66 subjects which are under the exclusive auth[illegible] of State government. *3. Concurrent Li[illegible]* 47 subjects, where the Union

concurrent powers.

Eighth Schedule [under Arts. 344(1) and 351(1)] gives a list of 15 languages recognized by the Constitution: 1. Assamese, 2. Bengali, 3. Gujarati, 4. Hindi, 5. Kannada, 6. Kashmiri, 7. Malayalam, 8. Marathi, 9. Oriya, 10. Punjabi, 11. Sanskrit, 12. Sindhi, 13. Tamil, 14. Telugu, 15. Urdu.

Ninth Schedule [under Art. 31(B)] was added by the Constitution (First Amendment) Act 1951. It contains Acts and orders relating to land tenures, land tax, railways, industries, etc. passed by the State governments, and the Union government which are beyond the jurisdiction of civil courts.

The relevant Artt. 31(B) reads as follows:

"None of the Acts and Regulations specified in the Ninth Schedule, nor any of provisions thereof shall be deemed to be void or ever to have become void on the ground that such Act, Regulation or Provision is inconsistent with or takes away or abridges any of the rights conferred by any provisions of this part and notwithstanding any judgment, decree or order of any court or tribunal to the contrary, each of the said Acts and/or Regulations shall, subject to the power of any competent Legislature to repeal or amend it continue in force."

Tenth Schedule [under Articles 101, 102, 191 and 192) was added by the constitution (52nd Amendment) 1985. It contains the Anti-defection Act.

HE AMENDMENTS

/ith the Goa State Formation Act of 1987, number of constitution Amendments has :hed 58. As in the case of the American ıstitution, some of the amendments have ome better known than the constitutional visos themselves One of the peculiar ures of the Indian Constitution is that ous parts of it call for various processes of endments

he methods of amendment are three, ording to the subject matter of the Article cerned 1) Articles that may be amended a simple majority of Parliament These are nly matters of detail like those provided in Schedules 2) Articles that may be ended by a two-thirds majority of both ses of Parliament. These are comparatively ortant matters 3) Articles that require not y a two-thirds majority of Parliament but ratification by at least one-half of the State islatures.

hese are specifically mentioned. They are following: Articles concerning the election ie President (Arts. 54 & 55), the powers of Union Cabinet (Art. 73), the powers of e Cabinets (Art. 162), the High Courts in on Territories (Art. 241), the establishment the Supreme Court (Ch. IV, Part V), stitution and powers of the High Courts V, Part VI), Relations between the Union tate Legislatures (Ch. 1, Part XI), the —Union List, State List and Concurrent —in the Seventh Schedule, the representation of States in Parliament and the provisions of Article 368 itself (Part XX).

Article 368 (Part XX) lays down the general procedure for Amendments. But Articles that require only a *simple majority in Parliament* do not fall in this category. Such Articles are indicated by a special clause attached to each of them which specifically excludes the operation of Art. 368 (see Art. 21, Sixth Schedule). Amendment of all other Articles comes within the scope of Art. 368.

Starting with the First (Constitution) Amendment Act 1951 we have come down to the 58th Amendment in 1987. This works out at an average of 1½ amendments per year.

1. Constitution (First Amendment) Act, 1951. Besides making minor changes in Articles 15, 19, 85, 87, 174, 176, 341, 342, 372 and 375 this Act added two new Articles, 31-A and 31-B and a new Schedule, the 9th Schedule.

This amendment has permitted reasonable restrictions to be imposed by law on the exercise of the right of freedom of speech and expression in the interest of friendly relations with foreign States, or public order. It has also removed from the scope of judicial review, restrictions imposed on the right of citizens to carry on any trade, business, industry or service where such restrictions have been imposed with a view to enabling the State to undertake any scheme of nationalization.

Another clause of the Amendment authorizes the State to make special provision for the advancement of any socially and educationally backward class of citizens or for the Scheduled Castes and the Scheduled Tribes.

Two new Articles 31-A and 31-B were inserted. Article 31-A provides that no law providing for the acquisition by the State of any estate or of any rights therein or for the extinguishment or modification of any such rights shall be deemed to be void on the ground that it is inconsistent with, or takes away or abridges any of the rights conferred by any provision of this Part III.

Article 31-B provides that none of the acts and regulations specified in the Ninth Schedule nor any of the provisions thereof shall be deemed to be void, or even to have become void on the ground that such act, regulation or provision is inconsistent with, or takes away or abridges any of the rights conferred by any provisions of Part III and notwithstanding any judgement, decree or order of any court or tribunal to the contrary, each of the said acts and regulations shall continue in force.

2. *Constitution (Second Amendment) Act, 1952,* amended Article 81 with a view to readjusting the scale of representation in the House of the People, necessitated by the completion of the 1951 census.

3. *Constitution (Third Amendment) Act, 1954,* substituted entry 33 of the Concurrent List in the 7th Schedule by a new one including foodstuffs, cattle fodder, raw cotton and jute as additional items whose production and supply can be controlled by the Central Govt. if found expedient in the public interest

4. *Constitution (Fourth Amendment) Act, 1955.* The Amendment provides that when the State compulsorily acquires private property for a public purpose, the scale of compensation prescribed by the authorizing legislation could not be called in question in a court. Another clause excludes the temporary taking over of a property by the State, either in public interest or to secure its better management from the compensation clause. The amendment also operates as a saving clause for State monopolies. Seven new entries were also added to the 9th Schedule

5. *Constitution (Fifth Amendment) Act, 1955,* empowers the President to fix a time limit for State Legislatures to express their views on proposed Central laws affecting the area and boundaries etc. of their respective States.

6. *Constitution (Sixth Amendment) Act, 1956,* added a new entry to the Union List in the Seventh Schedule relating to taxes on the sale and purchase of goods in the course of Inter-State transactions.

7. *Constitution (Seventh Amendment) Act, 1956.* This act came into force on 1st Nov. 1956. It was passed for the reorganization of the States. It involved not only the establishment of new States and alterations in State boundaries but also the abolition of the three categories of the States and the classification of certain areas as Union Territories. This led to the amendment of Article 1 and the First Schedule of the Constitution Among the other important Articles which were affected by this amendment were Article 131 on the original jurisdiction of the Supreme Court, Article 168 providing for bicameral legislature in certain States and Articles 216, 217, 220 and 224 dealing with the High Courts. Two new Articles 340-A and 350-B were added with a view to implementing the recommendations of the States Reorganization Commission regarding constitutional safeguards for linguistic minorities

8 *Constitution (Eighth Amendment) Act, 1959,* extended the special provision relating to reservation of seats for the Scheduled Tribes and representation of Anglo-Indians in the House of the People and Legislative Assemblies of States, for a further period of ten years from Jan 26, 1960.

9 *Constitution (Ninth Amendment) Act, 1960* amended the first Schedule of the Constitution in order to give effect to the transfer of certain territories to [illegible] in pursuance of the agreements [illegible] between the Governments of India [illegible] [illegible] in Sept 1958.

10 *Constitution (Tenth Amendment) [illegible] 1961* incorporated former [illegible] [illegible] of Dadra and Nagar [illegible] and provided for their [illegible] President.

11 *Constitution [illegible] 1961,* [illegible] of the two Houses [illegible] [illegible] of Vice-Pre[illegible]

as to make it clear that the election of the President or the Vice-President shall not be challenged on the ground of any vacancy, for whatever reason, in the appropriate electoral college.

12. Constitution (Twelfth Amendment) Act, 1962. The twelfth amendment was passed to include the territories of Goa, Daman and Diu as a Union Territory in the First Schedule to the Constitution and to empower the President to make regulations for the peace, progress and good government of these areas.

13. Constitution (Thirteenth Amendment) Act, 1962, created Nagaland as the sixteenth State in the Indian Union.

14. Constitution (Fourteenth Amendment) Act, 1962, conferred necessary legislative powers on Parliament to enact laws for the creation of Legislature and Council of Ministers in Union Territories Former French establishments of Pondicherry, Karaikal, Mahe and Yanam were specified in the Constitution as the Union Territory of Pondicherry

15. Constitution (Fifteenth Amendment) Act, 1963, was a minor amendment empowering the President of India, in consultation with the Chief Justice of India to make final decisions on the dispute about a High Court Judge's age. It also shortened the procedure for disciplinary action against State employees

16 Constitution (Sixteenth Amendment) Act, 1963, empowered the State to enact any legislation, imposing reasonable restrictions on the exercise of fundamental rights by citizens, so as to protect the sovereignty and integrity of India

It also amended the forms of oath, provided in the Third Schedule

17. Constitution (Seventeenth Amendment) Act, 1964, provided that if the State acquires land under the personal cultivation of the owner and within the ceiling limit, compensation had to be paid at the market value of the property so acquired. The amendment also extended the protection of the 9th Schedule to 64 State land enactments.

18. Constitution (Eighteenth Amendment) Act, 1966, provided for the linguistic reorganization of the Punjab into a Punjabi-speaking State called Punjab and a Hindi-speaking State called Haryana.

It further provided that the word 'state' in cls. (a) to (e) of Art. 3 includes a Uni Territory and clarified that Parliament had power to form a new State or Union Territ by combining any part of a State or Uni Territory with any part of any other State Territory.

19. Constitution (Nineteenth Amendme Act, 1966, is a minor amendment clarifying duties of the Election Commission.

20. Constitution (Twentieth Amendme Act, 1966, validated the appointment of cert District Judges, irregularly appointed.

21. Constitution (Twenty-first Amendme Act, 1967, provided for the inclusion of Sin in the Eighth Schedule to the Constituti

22 Constitution (Twenty-second Ame ment) Act, 1969, empowered Parliament carve a new State (Meghalaya) out of Assa

23. Constitution (Twenty-third Amendme Act, 1969, provided for the extension of reservation of seats for Scheduled Castes a Tribes and the nomination of members of Anglo-Indian community for another 10 ye

24. Constitution (Twenty-fourth Ame ment) Act, 1971, affirmed the Parliame power to amend any part of the Constituti including Fundamental Rights by amend Articles 368 and 13 of the Constitution. T neutralized the decision in Golaknath ca

A peculiar feature of the Amendment that the President was bound to give his ass to amending Acts, when they were presen to him, thus making Presidential assent automatic act.

25. Constitution (Twenty-fifth Amendme Act, 1971, barred the jurisdiction of cou over acquisition laws in regard to the adeq cy of the amount paid in lieu of take-over. T word "compensation" in the case of take-o was deleted and the word "amount" sub tuted.

A new clause provided that if any law passed to give effect to the Directive Princip contained in clauses (b) and (c) of Article and contained a declaration to that effect shall not be questioned on the ground tha takes away or abridges Fundamental Rights on the ground that it does not give effect to principles contained in the declaration.

26. Constitution (Twenty-sixth Amendme Act, 1971. This Amendment withdrew recognition given to former rulers of Princ

States and abolished the privy purses granted to them.

27. Constitution (Twenty-seventh Amendment) Act, 1971. Under this Amendment two new Union Territories, Mizoram and Arunachal Pradesh, were set up.

28. Constitution (Twenty-eighth Amendment) Act, 1972. The Amendment deleted Article 314 of the Constitution, which gave protection to the ICS officers' conditions of service and privileges.

29. Constitution (Twenty-ninth Amendment) Act, 1972. This Amendment included the Kerala Land Reforms (Amendment) Act, 1969 and the Kerala Land Reforms (Amendment) Act, 1971, in the Ninth Schedule to the Constitution so as to protect these Acts from judicial review.

30. Constitution (Thirtieth Amendment) Act, 1972. This Amendment curtailed the number of appeals to the Supreme Court. Formerly appeals to the Supreme Court were decided on the basis of the valuation of the subject matter. The Amendment made only such cases which involve a substantial question of law, appealable to the Supreme Court.

31. Constitution (Thirty-first Amendment) Act, 1973, increased the upper limit of elective seats in the Lok Sabha from 525 to 545.

32. Constitution (Thirty-second Amendment) Act, 1973, implemented the 6-point programme for Andhra Pradesh.

33. Constitution (Thirty-third Amendment) Act, 1974, invalidated the acceptance of resignations by members of the State Legislatures and Parliament, which were made under duress or coercion, or any other kind of involuntary resignations.

34. Constitution (Thirty-fourth Amendment) Act, 1974, provided constitutional protection to 20 land reform acts passed by the various States, by including them in the 9th Schedule to the Constitution.

35. Constitution (Thirty-fifth Amendment) Act, 1974, provided for Associate State status to Sikkim.

36. Constitution (Thirty-sixth Amendment) Act, 1975, made Sikkim a State of the Indian Union—the 22nd State, in fact.

37. Constitution (Thirty-seventh Amendment) Act, 1975, provided for a legislative Assembly and a Council of Ministers for the Union Territory of Arunachal Pradesh.

38. Constitution (Thirty-eighth Amendment) Act, 1975, amended Arts. 113, 213, 289 B, 352, 356, 359 and 360 of the Constitution. It made the declaration of Emergency by the President and the promulgation of Ordinances by the President, Governors, and Administrative Heads of Union Territories non-justiciable (beyond the purview of the judiciary).

It laid down that the satisfaction of the President, Governor or Authority as to the necessity of immediate action shall be final and shall not be questioned by any court on any ground. It also entitled the President to issue different proclamations on different grounds.

39. Constitution (Thirty-ninth Amendment) Act, 1975, amended Arts. 71 and 329 of the Constitution and the Ninth Schedule. It placed the election of the President, Vice-President, Prime Minister and the Speaker beyond judicial scrutiny.

It provided for a new forum for the disposal of election questions relating to the incumbents of the four high offices—the President, the Vice-President, the Prime Minister and the Speaker.

When a person has been appointed Prime Minister or chosen as a Speaker during the pendency of an election petition in respect of his (or her) election such petition shall abate. His (or her) election will remain valid, notwithstanding any law made by Parliament before the commencement of the Constitution (Thirty-ninth Amendment) Act, 1975 in so far as it relates to elections. Such elections shall not be deemed to be void or ever to have become void on any ground whatsoever.

40. Constitution (Fortieth Amendment) Act, 1976, amended Art. 297 and declared that "all land, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf or the exclusive economic zone of India shall vest in the Union and shall be held for the purpose of the Union."

"The limits of the territorial waters, the continental shelf, the exclusive maritime zone or other maritime zones of India shall be such as may be specified from time to time by or under any law made by Parliament".

41. Constitution (Forty-first Amendment) Act, 1976, raised the retiring age [illegible] State

Public Service Commission members from 60 to 62. This does not affect the members of the Union Public Service Commission who retire at the age of 65.

42. Constitution (Forty-second Amendment), Act, 1976, was passed by Parliament on November 2, and after having been ratified by half of the State Assemblies received Presidential assent on December 18, 1976. The Amending Act is a piece of comprehensive legislation containing 59 clauses and touching upon varied constitutional questions.

The main features of the Amending Act may be summarized as follows:

1. The Preamble has been altered from 'sovereign democratic republic' to 'sovereign socialist, secular, democratic republic' and 'unity of the nation' into 'unity and integrity of the nation'.

2. The Directive Principles of the Constitution have been given precedence over Fundamental Rights, wherever they came into conflict.

3. Similarly prevention or prohibition of anti-national activities takes precedence over Fundamental Rights

4. Certain Fundamental Duties are laid down which have to be observed by all citizens Non-compliance with or refusal to observe the duties shall be punishable at law. No court shall question the validity of such actions.

5. Number of seats in the Lok Sabha and the State Assemblies which are based on population shall remain frozen as in the 1971 census till 2001 A.D., that is to say, for 2 more Decennial Censuses.

6. The duration of the Lok Sabha and the State Assemblies is increased from 5 to 6 years

7. The quorum for the Lok Sabha and the State Assemblies prescribed in the Constitution has been removed which means that a quorum is no longer a constitutional necessity.

8. The Parliament may decide what offices are offices of profit under the government or what amounts to corrupt practice in disqualifying an elected member from any house of legislature.

9. Rights and privileges of members and committees of legislatures are to be decided by the concerned houses from time to time.

10. Proclamation of Emergency may be made applicable to any part of the country (instead of the whole country). Similarly emergency can be lifted from any part of the country while it remains in force in other parts.

11. The duration of a Presidential proclamation taking over the government of a State shall be one year instead of six months.

12. The Union has the power to deploy armed forces to any State and to delimit cantonment areas in States. The State cannot exercise any power in the disposition of the armed forces or the administration of cantonment areas.

13. No court can question the competence of the Parliament to amend the constitution in any manner.

14. The Supreme Court alone can adjudicate on the validity of any Central law and the High Courts can adjudicate on the validity of the state laws. If the validity of any State law is dependent on the validity of any Central law or vice versa, then the Supreme Court can adjudicate on them. In any case, any decision on constitutional invalidity has to be made by a two-thirds majority of sitting judges where the number is not less than 5. If the number of judges is less than five the judgement has to be unanimous. It is also provided that the High courts have no power to make an interim order, where it will impede or obstruct any enquiry or action by the Government.

15. The President's liability to act in accordance with the advice of the Council of Ministers has been made practically mandatory.

43. Constitution (Forty-third Amendment), Act, 1977 which received Presidential assent on April 3, 1978 (i) omits some Articles added by the Forty-second Amendment and (ii) alters other Articles.

The omissions relate to articles that give unfettered authority to the Executive to eliminate or restrict the powers of the Supreme Court and High Courts. The alterations apply to Arts. 145, 226, 228 and 366.

All these omissions and alterations imply that the constitution has reverted to the position that prevailed before the passing of the Forty-second Amendment, at least in matters specifically referred to in the Amendment.

44. Constitution (Forty-fourth Amendment) Act, 1978 which received Presidential assent on April 30, 1979 brought in a number of changes. These apply to the following: Arts. 19, 22, 30, 31, 31A, 31C, 38, 71, 74, 77, 83, 103, 105, 123, 132, 133, 134A, 139A, 150, 165, 172, 192, 194, 213, 217, 226, 227, 239B, 257A, Chapter IV, Part XX, 329, 329A, 352, 356, 358, 359, 360, 361, 371F, Ninth Schedule and Forty-second Amendment Sections 18, 19, 21, 22, 31, 32, 34, 35, 56 and 59.

Of these Arts. 19, 31, 31A, 31C, 38, 77, 83, 105, 123, 132, 133, 134A, 139A, 150, 165, 194, 213, 217, 225, 226, 227, 239B, 257A, 329, 329A, 371F and Sections 18 to 59 of Forty-second Amendment itself are either omissions or deal with details or are comparatively unimportant. Others deserve notice.

Art. 22. This article deals with preventive detention. The important change is that preventive detention for a period of more than 2 months can be ordered only on the recommendation of an Advisory Board, whose Chairman shall be a judge of a High Court.

Art. 30. The Amendment of this article reads as follows:

In article 30 of the Constitution, after clause (1), the following clause shall be inserted, namely:-

"1A). In making any law providing for the compulsory acquisition of any property of an educational institution established and administered by a minority, referred to in clause (1), the State shall ensure that the amount fixed by or determined under such law for the acquisition of such property is such as would not restrict or abrogate the right guaranteed under that clause."

Art. 71. This Art. deals with questions relating to the election of President or Vice-President. The amended article reads:

"71 (1). All doubts and disputes arising out of or in connection with the elections of a President or Vice-President shall be inquired into and decided by the Supreme Court whose decision shall be final.

(2) If the election of a person as President or Vice-President is declared void by the Supreme Court, acts done by him in the exercise and performance of the powers and duties of the office of President or Vice-President, as the case may be, on or before the date of the decision of the Supreme Court shall not be invalidated by reason of that declaration.

(3) Subject to the provisions of this Constitution, Parliament may by law regulate any matter relating to or connected with the election of President or Vice-President.

(4) The election of a person as President or Vice-President shall not be called in question on the ground of the existence of any vacancy for whatever reason among the members of the electoral college electing him."

Art. 74 deals with the powers of the President vis-a-vis the Cabinet. The amended article is as follows:

In article 74 of the Constitution, in clause (1), the following proviso shall be inserted at the end, namely:—

"Provided that the President may require the Council of Ministers to reconsider such advice, either generally or otherwise, and the President shall act in accordance with the advice tendered after such reconsideration."

Art. 83 restores the old term of 5 years to the Lok Sabha.

Art. 103 relates to questions concerning the disqualification of a member of Parliament. This is now to be decided by the President after consultation with the Election Commission.

Art. 172 restores the 5-year term of State Legislatures.

Art. 192 relates to the disqualification of a member of a State Legislature. This is now to be decided by the Governor after consultation with the Election Commission.

Chapter IV Part XX is an addition. The amendment reads:

In Part XII of the Constitution, after Chapter III, the following Chapter shall be inserted, namely:—

Chapter IV—Right to Property.

300 A. "No person shall be deprived of his property save by authority of law".

Arts. 352, 356, 358, 359 and 360 deal with Emergency. An internal emergency can now be declared on "armed rebellion" breaking out and not for "internal disturbance". Other provisions relating to the emergency in Art. 356, 358, 359 and 360 have also been substantially altered.

Art. 361 restores protection to publi[illegible]ns

of proceedings of the Parliament and State Legislatures.

Ninth Schedule entries 87, 92 and 130 have been deleted.

45. Constitution (Forty-fifth Amendment) Act, 1980, passed by Parliament on the 25th of January 1980.

Amended article 334 of the Constitution by substituting "thirty years" with "forty years".

This was to extend the safeguards in respect of reservation of seats in Parliament and State Assemblies for Scheduled Castes and Scheduled Tribes as well as for the Anglo-Indians for a period of 10 years, i.e., upto January 29, 1990.

46. The Constitution (Forty-sixth Amendment) Act, 1982—Article 269 was amended so that the tax levied on the consignment of goods in the course of inter-state trade or commerce shall be assigned to the states. This article was also amended to enable Parliament to formulate by law principles for determining when a consignment of goods takes place in the course of inter-state trade or commerce. A new entry 92B was also inserted in the Union List to enable the levy of tax on the consignment of goods where such consignment takes place in the course of inter-state trade or commerce.

47. The Constitution (Forty-seventh Amendment) Act, 1984—This amendment is intended to provide for the inclusion of certain land reform Acts in the Ninth Schedule to the Constitution with a view of obviating the scope of litigation hampering the implementation process of those acts.

48. The Constitution (Forty-eighth Amendment) Act, 1984—This was an amendment to Clause 5(q) article 356 of the Constitution for the continuation of President's rule in Punjab for another year.

49. The Constitution (Forty-ninth Amendment) Act, 1984—The Government of Tripura recommended that the provisions of the Sixth Schedule to the Constitution may be made applicable to the tribal areas of that state. The amendment involved in this Act is intended to give a constitutional security to the autonomous District Councils functioning in the state.

50. The Constitution (Fiftieth Amendment) Act, 1984—By article 33 of the Constitution, Parliament is empowered to enact laws determining to what extent any of the rights conferred by Part III of the Constitution shall, in their application to the members of the Armed Forces or the Forces charged with the maintenance of public order, be restricted or abrogated so as to ensure the proper discharge of their duties and the maintenance of discipline among them.

Article 33 was amended so as to bring within its ambit—

(i) the members of the Forces charged with the protection of property belonging to, or in the charge or possession of, the State; or

(ii) Persons employed in any bureau or other organization established by the State for purposes of intelligence or counter intelligence; or

(iii) Persons employed in, or in connection with, the telecommunication systems set up for the purposes of any Force, bureau or organization.

51. The Constitution (Fifty-first Amendment) Act, 1985, replaces the section dealing with "Scheduled Castes and Scheduled Tribes except in tribal areas of Assam, Nagaland, Meghalaya, Arunachal Pradesh and Mizoram" with "the Scheduled Tribes except the Scheduled Tribes in the autonomous district of Assam"—in articles 330 and 332.

52. The Constitution (Fifty-second Amendment) Act, 1985. The amendment effected by a Bill popularly called Anti-Defection Bill, was to curb defection by disqualification. The following are the salient features of the Act:-

(1) A Member of Parliament or State Legislature belonging to any political party shall be disqualified for being a member of that House

(a) if he has voluntarily given up his membership of such political party; or (b) he votes or abstains from voting in such House contrary to any direction issued by the political party to which he belongs or by any person or authority authorized by it in this behalf without obtaining in either case, the prior permission of such political party, persons authority, and such voting or abstention has not been condoned by such political party person or authority within 15 days from the date of such voting or abstention.

(2) An elected member of a House who has been elected as such otherwise than as

candidate set up by any political party shall be disqualified for being a member of the House if he joins any political party after such elections.

(3) A nominated member of a House shall be qualified for being a member of the House if he joins any political party after the expiry of six months from the date on which he takes his seat after complying with the requirements of Articles 99 or, as the case may be, Article 188.

53. Constitution (53rd Amendment) Act 1986, inserted a new article (371—G) conferring full statehood on Mizoram.

54. Constitution (54th Amendment) Act 1986, Amended part D of the 2nd schedule giving effect to the increases of salaries of the Chief Justice and Judges of Supreme Court and High Courts. An enabling provision for changes in the salaries of judges in future by Parliament by law, was made in Art. 125 and 221.

55. Constitution (55th Amendment) Act 1986, conferred full statehood on Arunachal Pradesh.

56. Constitution (56th Amendment) Act, 1987, provided for a Hindi translation of the constitution.

57. Constitution (57th Amendment) Act, 1987, sought to make a special provision for the setting up of the new state of Goa. Consequently Daman and Diu were separated from the former to form a Union Territory.

58. Constitution (58th Amendment) Act, 1987, amended Article 332 of the constitution providing for special arrangements with regard to reservation for scheduled tribes in the north-eastern states of Arunachal Pradesh, Nagaland, Mizoram and Meghalaya, until readjustment of seats on the basis of the first census after 2000 AD.

POLITICAL PARTIES

The Party System in India has developed on lines quite dissimilar to those which obtain in Western democracies. The main trends noticeable in India are absence of polarization or the lack of a powerful opposition, a cleavage of parties on national and state bases and endless proliferation.

The main reason why a polarization of parties never took place in India was that the Indian National Congress had completely dominated the national scene. Besides, the opposition itself had only a nominal existence in Parliament. In fact, till 1970, the opposition leader was not even formally recognized. The first opposition leader to be recognized as such, was Dr. Ram Subhag Singh, who was the leader of the Opposition Congress when the Congress split in 1970.

When the Janata Party came to power at the Centre in 1977 the opposition leader was given the status and rank of a Cabinet Minister. Y. B Chavan was the first opposition leader to enjoy the status.‡

‡ The Opposition Leader is a fictitious personage in most of the new democracies. In 1964, out of the 113 states who were members of the UN only 30 had a recognized opposition in Parliament. Since 1964 one-party states have become fashionable and Opposition Leaders as a class appear to be on their way out from history.

Instead of polarizing at the national level into ruling and opposition parties, another sort of polarization took place at national and state levels. Political parties soon came to be classified as national and state parties. The national parties function on an all-India basis.

They are integrative in character and ideologically committed to some form of political philosophy. The state parties have no special ideology. They are usually centred round local leaders and are mainly interested in local questions. Many of these parties are communal in character.

The fortunes of national parties depend very much upon the degree of power that state parties wield in ther respective states. But since national parties are better organized and have much greater financial resources, the chances of any state party getting the better of a national party, ultimately, are however rather remote.

Many are hard put to explain why political parties tend to multiply in India at such prodigious rates. During the 30 years that have elapsed, the country has seen a proliferation of political parties such as no other country in the world has witnessed. A rough tally yields a

hundred political parties of varied hues and shades that have come into existence since independence.

One explanation that has been offered is that the formation and functioning of political parties in India are not regulated by law.

In contrast, we may notice the conditions under which a political party may be formed in the Federal Republic of Germany (W. Germany). In FRG every political party has to be registered under the law. Membership registers have to be maintained, accounts have to be kept and generally political parties have to function in an orderly manner.

Of the 100 and odd parties scattered throughout the length and breadth of India, hardly a score deserves notice. The rest is made up of people, who cluster round displaced local leaders or hang on to sheer parochialisms, in the hope that their turn will ome some day. Many of them come to life uring election time and then go into hibernaon till the next election But to the dismay of ie voter, they never disappear altogether. hey exist only to swell the number of andidates, cloud the issues, and spread confuion all round

Under the Election Symbols (Reservation & llotment) order 1968, the Election Commision has the right to recognize political parties or allotment of symbols. Every candidate is otted a symbol If a candidate belongs to a litical party the symbol is allotted to the rty and the candidates use it on behalf of the arty.

The symbol is important, a large number of oters being illiterate. They cannot identify the andidates (or the party) whom they support r would like to support by reading their ames on the ballot paper or for that matter n placards or bill boards. The only thing that elps them to identify the candidates is the ymbol. In fact they vote for the symbol rather ian the candidate.

It is the duty of the Election Commission to llot symbols for the various parties and/ or ie candidates whenever an election is nnounced. It is for this purpose that the lection Commission distinguishes between ecognized and unrecognized parties. If a arty is recognised, a particular symbol is eserved' for it. No other party or person can laim it or use it in the election campaign. Unrecognized parties, which include indepen dent (unattached to any party) candidates, ca always choose any symbol other than th reserved symbols.

The list of recognized parties is revised afte every general election in the light of the vote polled by them. The general criterion fo recognition is that a party should secure least four per cent of the total votes cast in state.

If any such political party is treated as recognized political party in four or mor states, it enjoys the status of a National Par throughout India. If recognized in less tha four States, a party enjoys the status of a 'Stat Party' in the State or States in which it is recognized political party.

When India became free there were on two political parties worth the name—th mammoth Indian National Congress and th diminutive Communist Party of India. Wit independence many new parties came on th scene. When the first elections were hel (1951 Dec.—1952 Jan.) as many as 77 partie joined the fray.

The first important development was th breakup of the Communist Party in 1964 int two factions, right and left. The rightis retained the name and goodwill of the ol Communist Party of India. The leftists forme a new party—the Communist Party (Marxist

A more momentous development occurre in 1969. The monolithic Congress Party spl into two—the party led by the Prime Ministe Mrs. Indira Gandhi and the party led by th Congress president Nijalingappa. In the 197 elections the Congress Party under Mrs. Gar dhi won a massive majority in the Lok Sabh (350) while the party led by Nijalingappa mad a poor show winning only a miserable 1 seats.

The most important development in part politics in 1974 was the formation of th Bharatiya Lok Dal (BLD) or the People's Par of India in August 1974 at Delhi. The ne party was formed by the merger of seve existing parties, namely, Bharatiya Kranti De (BKD), Swatantra, Samyukta Socialist Part Utkal Congress, Kisan Mazdoor Party, Rash triya Lok Tantric Dal and Punjab Khetibo Zamindar Sabha.

In 1977 Mrs. Gandhi announced fres elections to the Lok Sabha. The miniscu

opposition parties got together to offer a united challenge to the dominating Congress Party. Under Jaya Prakash Narain's inspiring lead the Jana Sangh, the Opposition Congress, the BLD and the newly formed CFD (Congress for Democracy) under Jagjivan Ram came together as the Janata Party in May 1977 to offer a united front against the Congress led by Indira Gandhi.

The *Janata Party* won the elections gaining an absolute majority in the Lok Sabha, leaving only 135 seats for the Congress.

The Janata Party turned out to be a nine days wonder. Morarji Desai, the veteran congress leader, was elected leader of the party. He took over the government as Prime Minister on March 24, 1977. The new ministry put up a big show going into action on many fronts. But the writing on the wall was clear to all who cared to look beneath the surface. The Janata Party had been weighed in the balance and found wanting.

The fault lay in the leaders themselves. Petty infighting kept on returning like the proverbial bad penny. These finally led to the resignation of the Home Minister Charan Singh from the party's national executive and the parliamentary board. The Prime Minister reacted by asking Charan Singh and Raj Narain, the Health Minister, to resign from the cabinet.

The peace-makers intervened. In January 1979, Charan Singh returned to the cabinet as Deputy Prime Minister and Minister for Finance. But Jagjivan Ram, another leader, was also elevated as Deputy Prime Minister at the same time. The patch-work did not last long.

Charan Singh and his followers refused to support Desai as Prime Minister. So he was obliged to resign Prime Ministership in July 1979. But he did not resign from the leadership of the party. In the circumstances Charan Singh formed a new party called Janata (Secular) or Janata (S) for short. Morarji at last resigned the leadership of the party and Jagjivan Ram succeeded him.

Charan Singh and his supporters formed a new ministry while Jagjivan Ram continued as the leader of the opposition. Charan Singh, however, had to fall back on Mrs. Gandhi's party to maintain the requisite majority. Mrs. Gandhi withdrew her support on August 20, 1979 and the Charan Singh ministry fell.

However, as Prime Minister he advised the President to dissolve the Parliament and order fresh elections. The President asked Charan Singh to continue in the meantime as Prime Minister of a care-taker government. In view of the coming elections, Charan Singh and Raj Narain formed a new party—Lok Dal. But the two leaders soon fell out. In the elections that followed Mrs. Gandhi came back to power as the leader of the Indian National Congress, more familiarly spoken of as Indira Congress or Congress (I).

In July 1981 the Election Commission recognized Congress (I) as the legitimate successor of the old Indian National Congress and de-recognised the Congress faction led by Devraj Urs (Congress (U)) as a national party. In August Jagjivan Ram replaced Devraj Urs as President and Congress (U) became Congress (J). Subsequently the Maharashtra leader Sharad Pawar became the President of the breakaway Congress and Congress (J) transformed itself into Congress (S).

The Janata Party split up, the old Janata continuing with Chandrasekhar as President. The Lok Dal, the original splinter party started by Charan Singh, underwent many changes. It became Janata (K) after its President Karpoori Thakur, DMKP — Dalit Mazdoor Kisan Party - under Charan Singh himself and finally returned to hold its old name Lok Dal on the eve of 1985 by-election.

However, the major element in the old Janata Party, the Jana Sangh, gathered together under a new banner, the Bharatiya Janata Party, with A.B. Vajpayee as President. Meanwhile, a brand new party appeared on the horizon, the Democratic Socialist Party, with H.N. Bahuguna as President. Bahuguna became Vice President of Lok Dal in 1985.

ELECTIONS

The General Elections to the national parliament and state assemblies were held simultaneously till 1970. In 1971 this policy was given up. The national and state elections were 'de-linked' and held separately.

Although no explanation has been offered

for this departure in policy, it was probably the clash of interests between national and state parties that prompted this change.

First General Election 1952. In the first general election held in 1952, fifty one parties contested out of which 21 entered the Lok Sabha.

Second General Election 1957. At the second general election, the Congress secured 371 out of 494 elective seats in the Lok Sabha.

Third General Election 1962. Out of 494 parliamentary seats the Congress won 361.

Fourth General Election 1967. At the fourth general election, the performance of the Congress party was comparatively poor It secured only 283 seats out of 520.

Fifth General Election 1971. This was a mid-term election, the Lok Sabha having been dissolved on Dec. 27, 1971, one year and two months before the expiry of the full period. The results of the elections were startling. The Ruling Congress, under Indira Gandhi, swept the polls and came out with a massive majority of 350 out of 518 elective seats in the Lok Sabha.

On the 26th of June 1975 the President declared an emergency. This emergency was lifted only after the results of the sixth general election were announced, namely on the 22nd rch, 1977.

uring the emergency, the term of the Lok bha was extended to 6 years by the 42nd endment. This extension was annulled by the 43rd amendment in 1977 and the old term of 5 years was restored.

Sixth General Election 1977. The 6th general elections (March 1977) brought the Janata government to power. Janata won more than 296 seats in a total of 542—a clear majority—while the Congress could muster only 153 seats.

Seventh General Election 1980. The 7th general elections (January 1980) returned Indira Gandhi to power again with a two-thirds majority in the Lok Sabha. The Congress (I) won 353 seats in a total of 542.

Eighth General Election 1984. Polling was held on 24th, 27th and 28th December 1984 in 508 constituencies. In a landslide victory the ruling Congress(I) under Rajiv Gandhi secured 401 seats.

Elections to five Lok Sabha seats were countermaned—following the gas le tragedy in Bhopal and the death of candi in the other four constituencies, viz., Sril lam and Rajampet (A.P.) Chail (U.P.)

Latest Party Positio

As on 31st December 1987

Lok Sabha	
Congress (I)	
Telugu Desom	
C.P.M.	
Janata Party	
A.D.M.K.	
C.P.I.	
A.G.P. (Assam)	
N.C.	
Akali Dal (Badal)	
Lok Dal	
R.S.P.	
B.J.P.	
Muslim League	
Forward Bloc	
D.M.K.	
Akali Dal (Barnala)	
Kerala Congress	
Independent and Others	
Vacancies	
Total	

Rajya Sabha	
Congress (I)	
Telugu Desom	
C.P.M.	
Janata Party	
A.D.M.K.	
C.P.I.	
A.G.P. (Assam)	
N.C.	
Akali Dal	
Lok Dal	
R.S.P.	
B.J.P.	
Muslim League	
Forward Bloc	
D.M.K.	
Kerala Congress	
Janata (G)	
Sikkim Gana Samgram Parishad	
Nominated	
Independents	
Vacancies	
Total	

Madras North (Tamil Nadu).

Polling in these 5 constituencies was held on 28-1-1985. Congress (I) won in Chail and Bhopal, Telugu Desam in Srikakulam and Rajampet and DMK in Madras North.

The normal term of a state legislative assembly is five years, from the date of appointment for its first meeting.* Election to every legislative assembly is direct and on the basis of adult suffrage.

The general elections to the state assemblies, since independence, present a confused picture, primarily because new states and territories have been created, and many territorial adjustments among the old and the new have been made.

As early as 1953, Andhra Pradesh was carved out in the south. This was followed by the large-scale reorganization of states in November 1956. Next, the state of Bombay was bifurcated in May 1960 into Maharashtra and Gujarat. The latest reorganization has come about as a result of the North Eastern Areas (Reorganization) Act 1971. The north eastern region of the country now has five states, namely, Assam, Nagaland, Meghalaya, Manipur and Tripura and two union territories, namely, Mizoram and Arunachal Pradesh.

Territorial reorganization has led to consequential changes on the election scene. The composition of state legislative assemblies has altered, delimitation of assembly constituencies has been done afresh or readjusted wherever necessary and orders relating to scheduled castes and scheduled tribes have been modified.

Besides, mid-term elections in various states have added their own confusion. These elections come at odd times upsetting the statutory pattern of general elections. Between the first general election in 1951-52 and the fifth general election in 1972, there have been as many as 20 mid-term elections in different states.

March 1985

Andhra Pradesh: Total seats 294 (countermanded 2); — Telugu Desam: 202; Congress (I): 49; CPI: 11; CPI(M): 11; BJP: 8; Majlis 3; Janata 2; Ind: 6.

* The term of state assemblies was extended to 6 years by the 42nd Amendment. The 43rd Amendment restored the old period of 5 years.

Cycle of Ill Luck

Dame luck has turned her back on the Congress Party every tenth year after it first took over power from the British in 1947.

The party lost to the Marxists in Kerala in 1957 paving the way for the establishment of the first democratically-elected communist government in the world.

In 1967, it was worsted at the hustings in as many as nine states and could muster only just 128 seats in Bihar's 318 seat assembly, nine in Kerala's 133-member house and 50 in the then Madras State's 296-member legislature.

In the 1977 general election the Janata Party ousted it from power at the centre and in 14 states in the worst-ever debacle suffered by the party.

The year 1987 finds the party out of power in as many as 10 of India's 25 states with its latest defeat in Haryana in 1987 being the most humiliating.

Orissa: Total seats: 147 (Countermanded 2): — Congress (I): 117; Janata: 20; CPI: 1; BJP: 1; SUCI 1; Jagrata Orissa 1; Ind:4.

Rajasthan: Total seats: 200; (Countermanded 2): — Congress (I): 113; BJP: 38; Janata: 10; CPI(M): 1; DMKP: 27; Ind:9.

Himachal Pradesh: Total seats: 68; (elections held for 65); — Congress (I): 55; BJP: 7; DMKP: 1; Ind: 2.

Maharashtra: Total seats: 288; — Congress (I): 162; Cong(S) 54; Janata: 20; BJP: 16; PWP: 13; CPI: 2; CPI(M): 2; Ind: 19.

Bihar: Total seats: 324; (Countermanded 5): — Congress (I): 192. DMKP: 38; Janata 11; BJP: 12; CPI: 12; JMM: 10; Cong.(S): 1; CPI(M): 1; Ind: 21.

Gujarat: Total seats: 182; — Congress (I): 149; Janata: 14; BJP: 11; Ind: 8.

Uttar Pradesh: Total seats: 425 (Countermanded 3); — Congress (I): 266; DMKP: 85; BJP: 16; CPI: 6; CPM: 2; Janata: 19; Cong.(S): 4; Ind: 24; Others: 71.

Karnataka: Total seats: 224; Janata: 139; Congress (I) 66; CPI: 4; C[illegible]P: 2; MES: 3; Ind: 8.

Madhya Pradesh: Total seats: 320; — Congress (I): 250; BJP: 58; Janata: 5; Congress (S): 1; Ind: 6.

Sikkim: Total seats: 32; —SSP: 30; Congress (I) 1; Ind: 1.

Pondicherry: Total seats: 30; — Congress (I): 15; AIADMK: 6; DMK: 5; Janata: 2; Ind: 2.

September 1985

Punjab: Total seats: 117; Seats declared: 115; (election in two countermanded); — Akali Dal (L) 73; Congress (I) 32; BJP 4; CPI 1; Janata 1; Independents 4.

Punjab: Lok Sabha: Total seats: 13; Akali Dal (L): 7; Congress (I) 6.

December 1985

Assam: Total seats: 125; (excluding one countermanded); Asom Gana Parishad (AGP): 64; Congress 25; United Minorities Front (UMF): 17; Congress (S): 4; CPM: 2; Plains Tribals Council of Assam (PTCA): 3, Independents: 10.

Assam: Lok Sabha

Total seats: 14; Asom Gana Parishad (AGP): 7; Congress: 4; United Minorities Front (UMF): 1; Others: 2.

March 1987

West Bengal: Total seats: 294; CPI(M): 187; F.B.: 26; RSP: 18; CPI: 11; RCPI: 1; DSP: 2; WBSP: 4; F.B.(M): 2; Cong.(I): 40; Muslim League: 1; SUCI: 2.

Jammu and Kashmir: Total seats: 78; National Conference 40; Congress (I): 27; BJP: 4; MUF 4; Independents:3.

Kerala: Total seats: 141 (including a nominated member). LDF: 79 (CPM-38, CPI-16, Janata-7, Cong.(S)-6, RSP-5, Lok Dal-1, Front backed independents-6 including one nominated member)

UDF: 60 (Cong.(I)-33, IUML-15, Kerala Congress(J)-5, Kerala Congress(M)-4, NDP-1, Front backed independents-2.) Independent: 2 (one CMP and one Cong.(I) rebel).

June 1987

Haryana: Total seats: 90; Elections held: 87; Lok Dal-(B): 59; BJP: 15; Cong. (I): 5; CPI: 1; CPM: 1; Independents: 6.

November 1987

Nagaland: Total seats: 60. Congress(I) - 34, NNDP - 18, NPP - 1, Ind. - 7.

RESERVE BANK TURNS 52

The Reserve Bank of India was established on April 1, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. The Bank was originally constituted as a shareholders institution with a share capital of Rs. 5 crores. In the context of the need for close integration between the Bank's policies and those of Government, the entire share capital of the Bank was transferred to Government from January 1, 1949 in terms of the Reserve Bank (transfer to public ownership) Act, 1948. The Bank entered upon its career as a state-owned institution from that date.

The main functions of the Reserve Bank are 1) act as note-issuing authority, 2) act as bankers' bank and banker to Government, 3) to promote the growth of the economy within the general economic policy of the Government and ensure price stability. 4) To operate the currency and credit system to the country's advantage. Since nationalization the Bank has been directed to perform certain development-oriented functions such as promotion of high growth-rate, full employment and sound external payments position.

A special feature of the Reserve Bank of India Act was the provision made for granting financial accommodation to the cooperative banking sector for financing agricultural operations and the marketing of crops. The Bank set up an Agricultural Credit Department mainly to study and provide consultative service to the Governments and banks and co-ordinate its activities with those of other agencies providing such credit.

The various *Departments of the Bank* are as under:

1) Secretary's Department.
2) Department of Banking operations and Development
3) Industrial Export Credit Department.
4) Rural Planning and Credit Department.
5) Urban Banks Department.
6) Exchange Control Department.

7) Department of Currency Management.
8) Department of Expenditure and Budgetary Control.
9) Department of Government and Bank Accounts.
10) Department of Financial Companies.
11) Department of Statistical Analysis and Computer Services.
12) Department of Economic Analysis and Policy.
13) Credit Planning Cell.
14) Department of Administration.
15) Personnel Policy Department.
16) Management Services Department.
17) Legal Department.
18) Inspection Department.
19) Premises Department.

Banking System in India: 'Commercial banks' and 'Co-operative banks' are the two main categories of banks in the country. Another category, the Regional Rural Banks is akin to commercial banks.

Commercial banks fall into four classes—banks in the public sector, those in private sector, foreign banks and regional rural banks. There are 28 banks in the public sector, comprising the State Bank of India and its 7 associate banks, 14 commerical banks in the private sector nationalized in July 1969, and 6 nationalized in April 1980. The public sector banks account for 90 per cent of the total banking business in India. Foreign banks number 18 and specialise in the field of foreign trade and international banking. There are 38 private sector banks. There are 107 regional rural banks. Co-operative banks serve mainly the needs of agriculture and allied activities, rural based industries and to a lesser extent, trade and industry in urban centres.

Another classification is that of scheduled and non-scheduled banks. Scheduled banks are those included in the second schedule to the Reserve Bank of India Act and the conditions for inclusion are (1) the bank must have a paid-up capital and reserves of an aggregate value of not less than Rs. 5 lakhs, (ii) it must satisfy Reserve Bank that its affiars are not conducted in a manner detrimental to the interests of its depositors and (iii) it must be a company as defined in the Companies Act, 1956. Scheduled banks enjoy the facility of obtaining accommodation from the Reserve Bank and of being considered for grant of authorised dealer's licence to handle foreign

SBI Among Top 100

The sole business institution to find a place in either the list of world's top 100 banks or companies is the State Bank of India, according to The Wall Street Journal.

It ranks 91st in the list of banks, but does not feature in the list of 100 largest companies. State Bank's total assets are valued at $ 28.415 billion as at the end of 1986 with capital just over $ 3 billion and net income $ 27 million.

The list of 100 largest banking companies is dominated by Japan bagging 11 of the first 20 places. The Citicorp of New York finds second place with assets of over $ 196 billion.

Mechanization In Banks

According to the recommendation of the Rengarajan Committee, bank mechanization programme is being implemented in two phases. The first phase (1985-87) is expected to cost Rs 135 crore and the second phase (1988-89) Rs 150 crore. During the first phase, about 11,000 electronic ledger posting machines (ELPM) are to be installed at 3500 branches along with 200 large micro processor at regional levels and 25 main frame systems. During the second phase, a further 3000 branches would have 20,000 ELPMs and 100 main computers. The most transforming working of branches, regional and head office.

The State Bank of India is installing an own private integrated telecommunication link called SBINET which would provide voice, telegraph data and last-mile facilities.

The Reserve Bank has installed a communications network of its own linking all its offices throughout India.

exchange. As on April 30, 1987, total number of scheduled banks was 289.

Non-scheduled banks are banking companies other than those included in the second schedule. There were 4 non-scheduled banks at the end of April 1987 as against 335 at the end of 1960 and 14 at the end of June 1969.

Finance for Agriculture: The Third Five-Year Plan document emphasises the urgent need for stepping up agricultural production in the country and the creation of a national level institution to provide funds by way of refinance to financing institutions for the propose. In this background, the Agricultural Refinance Corporation was established on July 1, 1963. In order to emphasise the developmental and promotional role assigned to it in addition to refinancing, the corporation was renamed as the Agricultural Refinance and Development Corporation in 1975 On July 12, 1982, the ARDC was merged into the newly formed National Bank for Agriculture and Development which was established to provide credit for the promotion of agriculture, small-scale industries, cottage and village industries, handicrafts and other rural crafts and other allied economic activities in rural areas with a view to promoting integrated rural development The capital of Nabard is Rs. 100 crores, subscribed by the Central Government and the Reserve Bank. The Chairman of Nabard is a Deputy Governor of the Reserve Bank.

Deposit Insurance and Credit Guarantee Corporation: In the wake of certain bank failures, the Deposit Insurance Corporation was established on January 1, 1962. With the taking over on July 15, 1978 of the Credit Guarantee Corporation, the corporation was renamed as Deposit Insurance and Credit Guarantee Corporation. Deposits have been insured upto Rs. 30,000 per account. The rate of premium is 4 paisa per annum for every Rs. 100/- of the total amount of assessable deposits. The chairman is a Deputy Governor of the Reserve Bank.

Industrial Development Bank of India: The Industrial Development Bank of India (IDBI) was established as a wholly owned subsidiary of the Reserve Bank in July 1964. From February 16, 1976, the IDBI was delinked from the Reserve Bank. The Reserve Bank however, has nominees on the Board of Directors of the IDBI.

Unit Trust of India: The Unit Trust of India commenced operations in July 1984, the Reserve Bank having subscribed 50 per cent of its initial capital of Rs. 5 crores. The share capital held by RBI was tranferred to the IDBI on its being delinked from the Reserve Bank in February 1976. The Reserve Bank nominates a trustee on the Unit Trust's Board of Trustees.

Training establishment of RBI: The foremost training institution, the Bankers' Training College, was established in 1964, to impart practical training to the supervisory staff of commercial banks, officers from RBI, government etc. Courses offered cover areas like credit appraisal, foreign exchange, inspection, development banking, performance budgeting etc.

The College of Agricultural Banking was set up in 1969 to train personnel of co-operative banks, land development banks, commercial banks, Regional Rural Bank, Nabard etc.

The RBI took the initiative in the establishment of the National Institute of Bank Management in 1968 to serve as nucleus of all training research and development activity in the banking system. The NIBM conducts Bank Management Programme, to help the banks in the development of expertise among officers for studying organizational and management problems etc.

Supervision and Inspection: Under the Reserve Bank of India Act and the Banking Regulation Act, the RBI has been vested with extensive powers of supervision and control over commercial and co-operative banks. The most significant of the supervisory functions is inspection of banks, the basic objective being the safeguarding of the interests of depositors and building up and maintaining a sound banking system in conformity with the banking laws and regulations as well as the country's socio-economic objectives.

Exchange Control: Exchange Control was introduced in India in 1939 mainly to conserve non-sterling area currencies. Later on, the Foreign Exchange Regulation Act of 1947 was enacted. This Act was replaced by a comprehensive legislation, the new Foreign Exchange Regulation Act, 1973 enacted in 1974. The RBI is now vested with additional powers to regulate the investments and the trading, commercial and industrial activities in India of foreign companies (other than banking com-

The Average Value of Rupee

What is the average value of a rupee in 1986-87? On August 12, 1987 the Minister of state for finance B. K. Gadhvi in a written reply to Mr. Kali Prasad Pandey gave the following average value of rupee vis-a-vis major international currencies during the years 1984-85, 1985-86 and 1986-87:-

Rupees per unit of foreign currency

	1984-85	1985-86	1986-87
U.S. dollar	*11.8886*	*12.2349*	*12.7782*
Pound sterling	*14.8668*	*16.8467*	*19.0722*
Deutsche mark	*3.9877*	*4.5553*	*6.2970*
Japanese yen	*0.0487*	*0.0562*	*0.0802*
French franc	*1.3006*	*1.4908*	*1.9290*
Canadian dollar	*9.0065*	*8.8892*	*9.3095*
Australian dollar	*9.8944*	*8.4364*	*8.4913*
Swiss franc	*4.7797*	*5.4688*	*7.6068*

The exchange rate of rupee is determined with reference to the value of a basket of currencies, mainly of countries which are India's major trading partners. Thus the exchange rate of rupee-vis-a-vis other currencies moves upward or downward depending upon fluctuations in the value of the currencies, constituting the basket. In a regime of floating exchange rates, frequent movements in exchange parity rates is a normal phenomenon.

"It is not possible to isolate the impact of exchange rate movements on country's trade and other financial transactions, particularly when the level of such transactions is influenced by a large number of other contributory factors", Mr. Gadhvi said.

* * *

The value of the rupee is now one-seventh of what it was in 1960.

Taking 1960 as the base year, the purchasing power of the rupee, measured as the reciprocal of the all-India consumer price index for industrial workers, was only 14.[illegible] paise in May 1987, Finance Minister N. D. Tiwari told the Lok Sabha in a written answer.

** ** **

How much does it cost to produce a one rupee and a Rs. 2 coin and note?

The cost of production of a one rupee coin is 59.87 paise and for a note [illegible] paise. The cost of producing a Rs. 2 coin is 65.89 paise and a note is 10.60 paise, the Minister of State for Finance Mr. Janardhan Poojary told the Rajya Sabha on [illegible].

In a written reply, he said that certain studies made in the RBI have [illegible] that a one-rupee currency note is expected to last for about four to six months while a two-rupee note is expected to last for about six to eight months. However, no scientific study has so far been made on the life of a currency note in the country, he said.

He said that 2000 million pieces of one-rupee coins were [illegible] during the period 1985-87.

anies), foreign nationals, and non-resident individuals; also the holding of immovable property abroad and the trading, commercial and industrial activities abroad by residents have been [illegible] under [illegible].

In the [illegible] of [illegible] policies and economic [illegible] in the last five decades, the Reserve Bank has made signifi-

cant contributions in diverse fields of activity. Apart from traditional central banking functions, it has promoted agricultural credit, helped build financial institutions and made great contribution in economic research and analysis. The Bank is bringing out a wealth of economic data, not easily available, in its annual Reports, currency and finance reports, statistical tables relating to banks in India and the monthly bulletins. The Reserve Bank has endowed chairs in leading universities to conduct research in monetary economics.

Industrial Finance and RBI

The major post-independence institutional innovations of relevance to long and medium-term finance for industry are the following:

1) *Industrial Finance Corporation of India (IFCI) — 1948*
2) *State Financial Corporations (SFCs) — 1952 onwards.*
3) *Industrial Credit and Investment Corporatin of India (ICICI) — 1955.*
4) *Life Insurance Corporation (LIC) — 1956.*
5) *Refinance Corporation for Industry — 1958, since merged with IDBI in 1964.*
6) *Industrial Development Bank of India (IDBI) — 1964.*
7) *Unit Trust of India (UTI) — 1964.*
8) *Industrial Reconstruction Corporation of India (IRCI) — 1971, now Industrial Reconstruction Bank of India.*
9) *General Insurance Corporation (GIC) — 1972.*
10) *Export-Import (Exim) Bank — 1982.*

Reserve Bank was directly involved as promoter or full owner in IFCI, SFCs, IDBI and UTI. For a long time, senior officials, Governors or Deputy Governors were chairmen of the boards of these institutions. It was only in 1976 that these institutions were delinked from the Reserve Bank. However, the Reserve Bank continues to provide loans and advances to the term-lending institutions as also to guide and advise them.

Commercial Banking: Bank branches expanded phenomenally since July 1969 assisting banks' deposit mobilization and their inclusion in organized banking system. The number of commercial bank offices increased more than six-fold from 8,321 on July 19, 1969 to 53,125 as of June 1986. The number of deposit accounts rose from 10 million at the end of March 1968 to 168 million by 1983. Aggregate deposits rose sharply from Rs. 4,646 crores in end-June 1969 to Rs. 93,000 crores by end-June 1986. The ratio of deposits to national income went up from 15.2 per cent to 48.9 per cent. About 40% of the financial saving of the household sector is in the form of deposits.

The population served per bank office declined sharply from 65,000 in 1969 to around 13,000 in 1986. The number of rural branches increased from 1833 to about 30,000 and this led to an increase in the proportion of rural branches to total from 22 per cent in July 1969 to 56 per cent at the end of June 1986. Regional imbalances have been evened out. In 1969, only 5 states accounted for half the total number of bank offices, whereas the share of the states in 1986 is less than a third of the total.

The origins of modern Indian banking can be traced to the three presidency banks of Bombay, Calcutta and Madras which functioned as bankers to the East India Company. Slowly they encompassed the banking business of the British Agency houses. Though proposals to amalgamate these three banks were mooted since 1866, it materialized only in 1921 and the Imperial Bank of India came into existence as a result. The Imperial Bank functioned as bankers to the Government of India and the provincial governments and also carried on commercial banking.

Joint-stock Banking: The principle of joint-stock banking with limited liability was recognized in 1860 which paved the way for private banks. By 1894, there were 14 joint-stock banks. In that year, the first wholly Indian bank, the Punjab National Bank was established.

The present structure of banking is the outcome of a long process of expansion, consolidation and re-organization over

LIC—On To The Fourth Decade

On 1st September 1986, the Life Insurance Corporation of India has stepped into the fourth decade of its existence, as a premier public sector financial institution.

Somehow even before nationalization of Life Insurance business in 1956, there was a spirit of nationalism in the insurance industry—in the pre-independence days as well. Indian Life Insurance rode on the high crest of "Be Indian—Buy Indian" wave as the tide of nationalism swept the country in the thirties and forties. Many-a-public spirited man took life insurance as a profession.

Prince Dwarakanath Tagore was associated with the first life insurance company in India—the Oriental Life Insurance Society (1818). Sir Pherozshah M. Mehta was one of the founders of the Oriental (Bombay). Lala Lajpat Rai and Pt. K. Santhana were the partners of Laxmi Insurance Company. Pt. Motilal Nehru, Dr. M. A. Ansari, Shri Srinivas Iyengar, Netaji Subash Chandra Bose—the great names associated with various insurance companies read like a 'who is who' of pre-independent nationalists.

After independence, the Avadi congress in 1955, adopted the goal of 'socialistic pattern of society'. This was followed by the nationalization of the Imperial Bank (1955) and Life Insurance business (1956). Life Insurance industry has not been nationalized anywhere else in the world. The only time it was attempted was in France, the experiment failed and the industry was returned to private sector.

But the story of LIC was different. It not only survived and thrived for thirty years but also inspired many other Afro-Asian countries to go in for similar corporations

Spreading the message of insurance, the mobilization of savings, the channelization of life insurance funds for the benefit of policy holders as well as the community—remain some of the corporate objectives of the L.I.C. From Rs 283.07 crores of new business in 1956 a whopping Rs. 9099 crores in March 1987 is a big leap.

Fourteen years after its formation the Corporation's business crossed Rs. 1000 crores in 1970-'71. The year 1975-'76 saw the business crossing 2000 crores. In 1981-'82 the achievement was Rs. 3000 crores. By 1984-'85 it reached 5000 crores and in '86-'87 it touched a new height of Rs. 9099 crores. The corporation proposes to introduce a business worth of Rs. 12,000 crores during the financial year ending in March 88

The Life Insurance Corporation of India has been steadily adding to its assets and the life fund which was Rs. 365 crores as at 1-9-56 crossed the 10,000 crores mark in 1984-'85 with the total rising to Rs. 12,666 crores in 1985-'86. With annual increase in the availability of resources around Rs. 1600 crores and the continuing expansion of insurance business of different types the life fund may reach Rs. 20,000 crores by 1989-'90.

With the growth of the funds the complexities of investing it have also increased many times. Because of the sheer volume of the funds handled by it, the investment operations of the Corporation have a synergic effect on the market. LIC's investment in government securities is about 56%. In fact a total of 83% of the funds generated by LIC is utilised either directly or indirectly by government agencies in the development of socially oriented ventures or for schemes like housing, electricity, water supply etc.

The income of the corporation was Rs. 2941 crores in 1985-'86 against Rs 2520 crores in the previous year with premium income accounting for Rs. 1783 crores and investment income for Rs. 1,127 crores The average yield on investments has been rising steadily with average returns being 9.87% in 1984-'85 against 9.45% in the previous year.

General Insurance

The general insurance business transacted by various private insurance companies was nationalized in 1973 and the General Insurance Corporation *was formed. The erstwhile private companies were grouped together as four subsidiaries of the newly formed corporation—National Insurance Co. Ltd., The New India Assurance Co. Ltd., The Oriental Insurance Co. Ltd. and United India Insurance Co. Ltd. The history of nationalized general insurance business is one of growth and development. During the last decade from 1977 to 1986 the GIC has increased its net premium income from Rs. 326 crores to Rs. 1366 crores and profit before tax from Rs. 113 crores to Rs. 289 crores.*

G.I.C. has, to a great extent, succeeded in spreading the message of insurance to the remotest corners of the country. Now the corporation has a representative office in almost every district in the country and has started transacting business in fields where the private companies never ventured to penetrate. A comprehensive crop insurance scheme was introduced by G.I.C. in 1985 and a modified medical insurance scheme called Mediclaim was introduced in 1986. According to Ashok Gorwala, Chairman, the corporation is thinking of a scheme for public liability insurance in the wake of growing awareness regarding hazards and incidents like

period of three decades. During the World War II period, there was a mushroom growth of banking companies, with weak and undesirable features. With the gradual imposition of regulations, a large number of banking companies went into liquidation or were amalgamated with stronger units. The failure of the Palai Central Bank in 1960 led to the introduction of a scheme of compulsory merger/amalgamation of banks and of a scheme of Deposit Insurance.

The Imperial Bank was nationalized in 1955 and renamed the State Bank of India. In 1959-60 the State Bank of India took over as subsidiaries 7 provincial banks at Hyderabad, Bikaner, Jaipur, Indore, Travancore, Saurashtra, Mysore and Patiala.

Need for Nationalization: While Indian banking system made good progress during the sixties, the response of private sector banks was slow and halting. Large industrial houses and industries had easy access to banking facilities. Many sectors of the economy though conducive to the production of ods and services useful to the community re denied access to banking funds. On the : of nationalization, commercial banks' operations were essentially urban-biased an maximisation of profit was their main guidin principle.

With a view to achieving a wider spread banking facilities and bringing about a chang in the lending pattern by directing increasin volume of credit to desired sectors an making banks an effective instrument of ec nomic development, the scheme of soci control was introduced by Government early 1968. This was followed by nationaliz tion of 14 major Indian banks on July 19, 196 With the nationalization of 6 more privat sector banks on April 15, 1960 and taking int account the State Bank of India and its seve subsidiaries, about 90% of the commercia banking is in the public sector.

Under an ordinance called the Bankin Companies (Acquisition and Transfer Undertakings) Ordinance 1969, the Govern ment of India nationalized 14 major India scheduled banks having deposits of Rs. 5 crores or over as on the last Friday of Jun 1969. They were Central Bank of India, Bank India, Punjab National Bank, Bank of Baroda United Commercial Bank, Canara Bank, Unite Bank of India, Allahabad Bank, Indian Bank

Profits of Nationalized Banks

(Rs. Crores)

Name of the Bank	1983	1984	1985	1986
Allahabad Bank	1.70	1.80	2.71	4.01
Andhra Bank	2.48	2.64	3.84	6.97
Bank of Baroda	8.60	7.01	9.86	19.01
Bank of India	5.11	5.30	8.53	14.30
Bank of Maharashtra	1.93	1.20	2.26	3.04
Canara Bank	4.96	5.51	11.01	18.16
Central Bank of India	3.99	3.06	6.75	24.08
Corporation Bank	0.93	1.10	1.37	2.00
Dena Bank	1.20	0.81	1.75	3.00
Indian Bank	1.40	1.41	3.52	6.25
Indian Overseas Bank	4.73	4.82	5.00	5.35
New Bank of India	0.72	0.36	2.04	2.41
Oriental Bank of Commerce	0.72	0.82	1.49	2.51
Punjab and Sind Bank	0.62	0.65	0.68	0.85
Punjab National Bank	8.53	9.01	12.00	15.01
Syndicate Bank	4.94	5.08	5.99	6.51
Union Bank of India	2.90	3.11	5.06	10.55
United Bank of India	1.36	1.18	0.22	0.23
United Commercial Bank	2.36	2.36	N.A.	N.A.
Vijaya Bank	0.05	0.06	0.31	2.66

c of Maharashtra and Indian Overseas c. This was enacted into law as the Banking ıpanies (Acquisition and Transfer of ertakings) Act, 1970.

n April 15, 1980, under the Banking ıpanies (Acquisition and Transfer of ertakings) Ordinance, 1980, 6 leading ımercial banks with deposits of Rs. 200 gs and above were nationalized. There e Andhra Bank, Corporation Bank, New k of India, Oriental Bank of Commerce, jab and Sind Bank and Vijaya Bank.

rofits: Commercial bank profits increased n Rs. 118 crores in 1985 to Rs. 192 crores in 6. Percentage increase in profits varies n as low as 7% in case of Indian Overseas k to 257% by Central Bank of India. Vijaya k and Union Bank of India also reported three digit percentage increase in profits. The profits of the State Bank of India are reported to be about Rs. 36 crores in 1986. It was observed that many banks had under-utilised infrastructure. A number of bank branches incurred losses owing to their inability to generate sufficient surplus to cover their operating costs.

According to the chairman of the Indian Banks Association, banking industry has turned a new leaf in the crucial area of profitability. Higher profits during the past two years are attributable to conscious efforts on the part of banks towards better funds management, rationalization of service charges and enlargement of capital base of the banks by the Government and certain conscious measures taken by the Reserve Bank to augment banks' earning capacity.

Banking in India

(Rs. Crores)

	1970-71	1984-85	1985-86	Dec. 86
Aggregate Deposits	5,906	72,244	85,288	1,00,964
Bank Credit	4,684	48,953	55,916	60,551
Investments	1,362	28,138	30,536	37,180
Cheque clearances	27,599	2,41,507	2,90,146	2,44,540
Commercial bank offices	11,540	50,980	53,123	53,324
Bank rate	6.00	10.00	10.00	10.00

IEW PATH FOR EDUCATION

Modern Education in India has been the acy of the British Raj. Now the government s decided to restructure the whole pattern make it "an effective instrument for taking country into the 21st century."

The National Policy on Education, approved the Parliament in 1986, seeks to establish, a tional system of education, which lays down overall curricular frame work and a core rriculum to establish comparability of competence at the end of various stages of lucation all over the country, reinforce the tegrative aspects of society and culture and so establish a value system necessary for an galitarian democratic and secular society.

In pursuance of the programme of action for the implementation of the new policy, the Government has launched a phased time-bound programme to cover approximately 40 million illiterates by 1990.

During the Seventh Plan, some 64 million additional children would have to be brought into schools, with at least 28 million of them passing through the formal system and the remaining 36 million taking into the non-formal system.

The current school drop-out rate was an alarming 76.6 per cent. If this was to be brought down, there had to climate for it. Adult education fully people's movement the country's population

also to take the form of a massive movement of functional literacy.

Education is practically a State subject, although it is included in the Concurrent List. The Central Government has little to do with it, particularly at the crucial primary level. In secondary education, the Central government comes into the picture. However, in higher education and research it is the Central government that dominates the scene.

With the Central and State governments sharing powers and the States themselves differing in their administrative tactics, it is no wonder that the educational picture of India shows wide regional disparities. It is in this context, that a National Policy on Education was formulated.

The National Policy on Education adopted by the Parliament far back in 1968 was mainly based on the recommendations of the Education Commission under Dr D. C. Kothari. The policy stressed the following objectives.

(i) Free and compulsory education upto the age of 14; (ii) improved status, emoluments and education of teachers; (iii) three-language formula and development of regional languages; (iv) equalization of education of science and research, (v) development of education for agriculture and industry; (vi) improvement in quality and production of inexpensive text-books; and (vii) investment of 6 per cent of national income in education.

Keeping in view the goal enshrined in the Constitution, the National Education Policy 1986, accorded a very high priority to the programme of Universalisation of Elementary Education to ensure essential minimum education to all children upto the age of 14 years. A phased drive called *'Operation Bla board'* has been envisaged in the policy improve primary schools all over the coun

Although it has not been possible to att the goal of universal enrolment, the progr achieved in increasing the enrolment has be remarkable. The total enrolment of children class I-VIII increased from 22.75 million 1950-51 to 109.635 million in 1984-85, t registering a more than four-fold increas

Of the total outlay of Rs. 63827 million education in the Seventh Plan (1985-90), amount earmarked for elementary educati is 28.6 per cent — Rs. 18305 million.

Education in all schools upto class 8, is n free in all States and Union Territories exc for boys in classes 7-8 in Uttar Pradesh.

Legislation for compulsory education, per constitutional directive, exists in 16 Sta and 3 Union Territories, namely, Andh Pradesh, Assam, Gujarat, Haryana, Himach Pradesh, Jammu & Kashmir, Karnataka, Ker Madhya Pradesh, Maharashtra, Orissa, Punj Rajasthan, Tamil Nadu, Uttar Pradesh, W Bengal, Andaman and Nicobar Islands, Chan garh and Delhi. In Himachal Pradesh, the covers the entire elementary stage (clas I-VIII), while in the remaining States/Uni Territories it covers only the primary st (classes I-V).

The National Policy on Education provi for opening of residential schools for talented children. These schools are nam *Navodaya Vidyalayas*. It is proposed to op such schools in each district in the coun during the Seventh Plan.

The Navodaya Vidyalayas are aimed at p viding opportunities to the talented childr

School Enrolment

(Figures in lakh)

	1981-82	1982-83	1983-84	1984-85	1985-86	1986-8 (Targ
Age-Group 6-11						
Classes I-V	753.25	775.93	805.97	853.85	891.26	931.1
Percentage of age-group	87.76	89.87	93.3	92.0	95.36	99.2
Age-Group 11-14						
Classes VI-VIII	218.13	235.81	254.78	269.17	289.97	312.8
Percentage of age-group	43.96	46.90	50.7	52.15	55.63	59.7
Age-Group 6-14						
Classes I-VIII	971.38	1011.74	1060.75	1123.02	1181.23	1243.9
Percentage of age-group	71.71	74.05	78.01	77.76	81.14	85.0

to develop their full potentials and to promote national integration. Education in these schools would be free for all students. Against 81 Vidyalays sanctioned in 1986-87, sixty have already started functioning.

National Council of Educational Research & Training (NCERT), established on September 1, 1961, is registered under the Societies Registration Act (1860). The main objectives of the NCERT are to assist and advise the Ministry of Education and Culture in implementing policies and major programmes in the field of education, particularly school education.

Among multifarious activities the Council has taken up is revision of secondary level syllabi and textbooks under a collaborative arrangement with the Central Board of Secondary Education.

Most of the States have already completed evaluation of textbooks from the standpoint of national integration and have also revised the textbooks. Efforts are being made to expedite the work in a few States where the progress has been slow.

The Council organizes, every five years, national surveys of teacher education both at secondary and elementary levels. Work has been initiated on the Third National Survey of Elementary Teacher Education and Fourth National Survey of Teacher Education at the secondary level.

The Regional Colleges of Education under NCERT, Ajmer, Bhubaneswar, Bhopal and Mysore continued to organize various pre-service and in-service courses. The summer school-cum-correspondence courses that have been introduced to clear the backlog of untrained graduate teachers also continued to be organized.

The Board of High School and Intermediate Education, Rajputana including Ajmer, Mewar, Central India and Gwalior was established in 1929 by a Resolution of the Government of India. In 195? the Board was given its present name *The Ce oard of Secondary Educa-*

through inter-state mobility of students. This arrangement also helps children of transferable persons to pursue uninterrupted studies.

An *Open School* was set up by the CBSE in 1979 for propagation of Distance Education in the country. It imparts secondary stage education through the use of Distance teaching techniques which include education through print material, personal contact programmes and other supportive services. The Open School has been conducting examination for its students since 1982-83 leading to Secondary School Certificate of CBSE.

With the idea of encouraging secondary schools having common syllabi and media of instruction for providing the facility of uniform education throughout the country for the children of transferable Central Government employees, including defence personnel, the scheme of *Central Schools* or *Kendriya Vidyalayas* was approved by the Government of India in November, 1962. To start with, 20 Regimental Schools were taken over as Central Schools or Kendriya Vidyalayas during the academic year 1963-64. Subsequently, *Kendriya Vidyalaya Sangathan* was set up as an autonomous organization to establish and run the Kendriya Vidyalayas.

With the opening of 63 new schools during 1984-85, at present the total number of Kendriya Vidyalayas is 633.

Education up to class 8 is free in Kendriya Vidyalayas. The amount of tuition fee for higher classes is linked to the pay of the parents in case they are employed in Central Government or Central Public Sector Undertakings/Autonomous Bodies. In other cases, tuition fee at a flat rate is charged. However, students belonging to Scheduled Castes and Scheduled Tribes and children of teaching and non-teaching staff of Kendriya Vidyalayas are *not charged any* tuition fee

The student enrolment in universities and colleges increased from 35.39 lakhs in 1984-85 to 35.71 lakhs in 1985-86. The enrolment of women students during 1985-86 was 10.59

IIT student strength 1985-86.

IIT	*Under Graduate*	*Post Graduate & Research*	*Out-turn*
Kharagpur	*1456*	*1427*	*791*
Bombay	*1143*	*1194*	*807*
Madras	*1090*	*1221*	*792*
Kanpur	*1221*	*935*	*703*
Delhi	*994*	*1316*	*774*

1953 under an Act of Parliament Nine Universities, commonly known as *Central Universities* are at present functioning under Acts of Parliament. Besides, the Central Government have established agencies for promotion and coordination of research efforts in specialized fields. There are four such national agencies at present, namely the *Indian Council of Social Science Research, the Indian Council of Historical Research, the Indian Council of Philosophical Research* and the *Indian Institute of Advanced studies.*

The UGC is at present providing assistance to 19 centres of Advanced Study and 62 Departments of Special Assistance in Science, Engineering & Technology and 10 centres of advanced Study and 25 Departments of Special Assistance in Humanities and Social Sciences.

The nine Central Universities are Aligarh Muslim University, Aligarh, University of Delhi, Delhi, University of Hyderabad, Hyderabad, Jawaharlal Nehru University, New Delhi, Indira Gandhi Open University, New Delhi, North-Eastern Hill University, Shillong, Viswabharati, Santiniketan, Benaras Hindu University, Varanasi and Pondichery University.

The five *Indian Institutes of Technology* at Kharagpur, Bombay, Madras, Kanpur and Delhi were established as premier centres of education and training in engineering and applied sciences and to provide adequate facilities for post-graduate studies and research.

The Institutes conduct under-graduate programmes leading to Bachelor's degree in various fields of engineering and technology. They also offer integrated Master's degree courses of five years' duration in Physics, Chemistry and Mathematics, two-year M.Tech. degree courses in various specializations a one-year post-graduate Diploma courses selected areas. In addition, the Institutes off Ph.D. Programmes in different branches Engineering, Science, Humanities and Soci Sciences. There are also advanced centres training and research in each institute identified areas of specialization.

The Government of India has establish four *Indian Institutes of Management* Ahmedabad, Bangalore, Calcutta a Lucknow.

Fourteen Regional Engineering Colleg were set up one each in the major stat during the Second and Third Plan periods enable the country to meet the increased ne for trained personnel during subsequent pl periods. The fifteenth college at Silch (Assam) was opened in 1977 and the sixteen at Hamirpur in Himachal Pradesh in 198

While all the colleges offer first degr courses in Civil, Mechanical and Electric Engineering, some of them also offer cours in Chemical, Metallurgical, Electronics, Mini and Architecture Engineering. Thirteen these colleges are also conducting post-grad ate courses. Of these, nine are conducti Industry-oriented courses in specialized fiel like Design and Production of high pressu boilers and accessories, Heavy machines fo steel plant, Transportation Engineering, I dustrial and Marine Structure, Integrated Po er system etc.

School of Planning and Architecture, N Delhi was established in July, 1955 as t School of Town and Country Planning provide facilities for training in Rural, Urb and Regional Planning and to cater to t needs of Central, States and Local Depa ments of Town Planning. It is a 'Deeme

University now.

With the setting up of Indira Gandhi National Open University in New Delhi, the Central University in Pondicherry and Dr. M.G.R. Medical University in Madras the number of Universities and University level institutions in the country has increased to 159.

Of these 105 are traditional universities while others are professional/technical institutions. There are 24 Agricultural Universities, 4 Medical Institutions and 10 Technical Institutions.

Following is the list of Universities and University level institutions in the country.

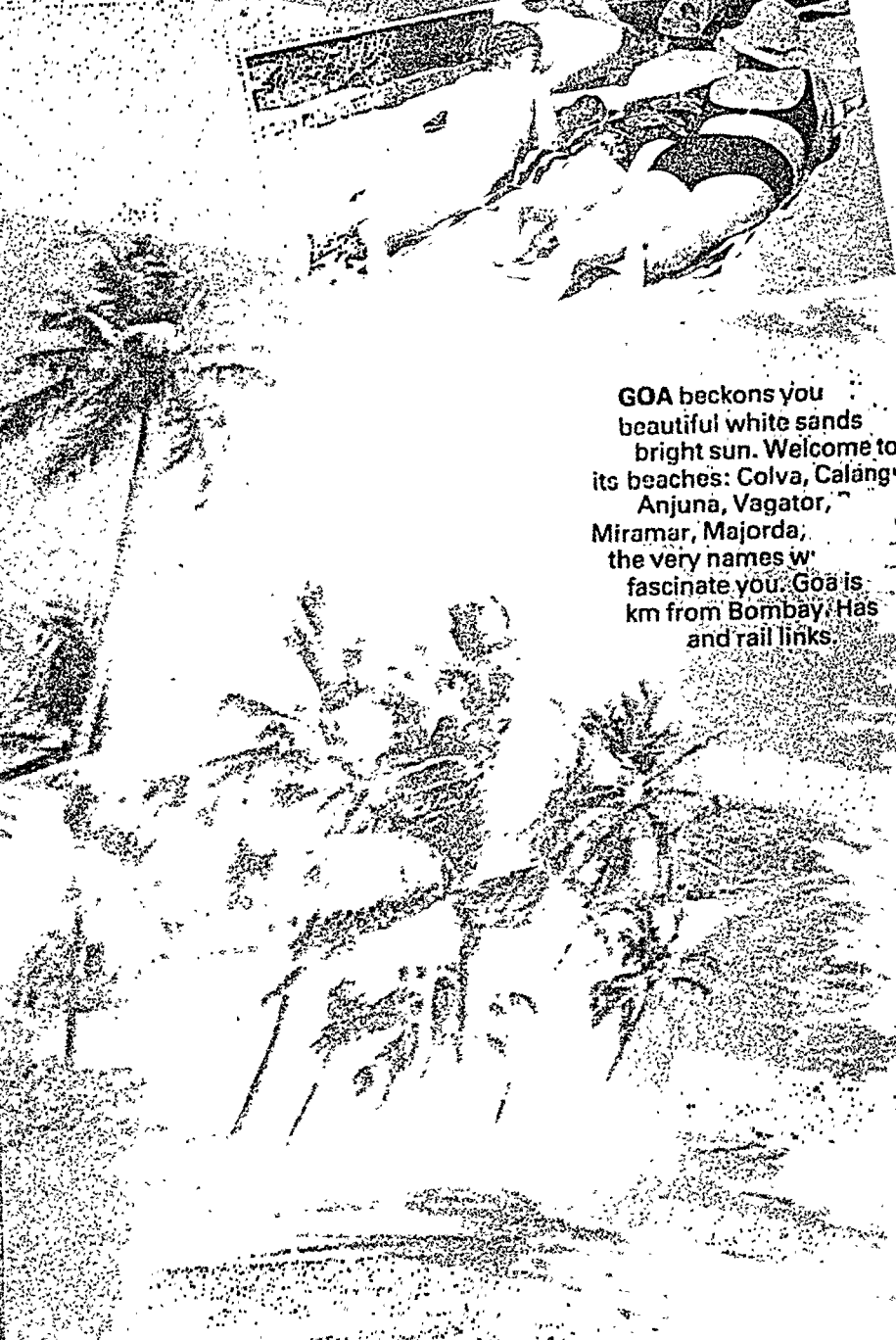
1. Agra University, Agra.
2. Aligarh Muslim University, Aligarh.
3. Allahabad University, Allahabad
4. All India Institute of Medical Sciences, New Delhi.
5. Amravati University, Amravati.
6. Andhra University, Visakhapatnam.
7. Andhra Pradesh Agricultural University, Hyderabad.
8. Andhra Pradesh Open University, Hyderabad.
9. Anna University, Madras.
10. Annamalai University, Annamalainagar.
11. Assam Agricultural University, Jorhat.
12. Avadh University, Faizabad.
13. Awadhesh Pratap Singh University, Rewa.
14. Banaras Hindu University, Varanasi.
15. Banasthali Vidyapith, Banasthali, Rajasthan.
16. Bangalore University, Bangalore.
17. M.S. University of Baroda, Baroda.
18. Berhampur University, Berhampur.
19. Bhagalpur University, Bhagalpur.
20. Bharatiar University, Coimbatore.
21. Bharathidasan University, Tiruchirappalli.
22. Bhavnagar University, Bhavnagar.
23. Bhopal University, Bhopal.
24. Bidhanchandra Krishi Vishwavidyalaya.
25. Bihar University, Muzzaffarpur.
26. Birla Institute of Technology & Science, Pilani.
27. Birsa Agricultural University, Ranchi.
28. University of Bombay, Bombay.
29. University of Bundelkhand, Jhansi.
30. University of Burdwan, Burdwan.
31. University of Calcutta, Calcutta.
32. Calicut University, Calicut.
33. Central Institute of English & Foreign Languages, Hyderabad.
34. Central University, Pondicherry.
35. Chandra Shekhar Azad University of Agriculture & Technolgy, Kanpur.
36. University of Cochin, Cochin.
37. Dakshina Bharat Hindi Pracharr Sabha, Madras.
38. Dayalbagh Educational Institute, Agra.
39. University of Delhi, Delhi.
40. Devi Ahilya Vishwavidyalaya, Indore.
41. Dibrugarh University, Dibrugarh.
42. Dr. Hari Singh Gour Vishwavidyalaya, Sagar.
43. Dr. M.G.R. Medical University, Madras.
44. Gandhiji University, Kottayam.
45. Gandhigram Rural Institute, Madurai.
46. Garhwal University, Srinagar.
47. Gauhati University, Guwahati.
48. University of Gorakhpur, Gorakhpur.
49. Govindh Ballabh Pant University of Agriculture & Technology, Nainital.
50. Gujarat Agricultural University, Dantiwada.
51. Gujarat Ayurveda University, Jamnagar.
52. Gujarat University, Ahmedabad.
53. Gujarat Vidyapith, Ahmedabad.
54. Gulbarga University, Gulbarga.
55. Guru Ghasidas University, Bilaspur.
56. Gurukula Kangri Vishwavidyalaya, Hardwar.
57. Guru Nanak Dev University, Amritsar.
58. Haryana Agricultural University, Hissar.
59. Himachal Pradesh University, Shimla.
60. Himachal Pradesh Krishi Vishwavidyalaya, Palampur.
61. University of Hyderabad, Hyderabad.
62. Indian Agricultural Research Institute, New Delhi.
63. Indian Institute of Science, Bangalore.
64. Indian Institute of Technology Bombay.
65. Indian Institute of Technology, New Delhi.
66. Indian Institute of Techology, Kanpur.
67. Indian Institute of Technology, Kharagpur.
68. Indian Institute of Technology, Madras.
69. Indian School of Mines, Dhanbad.
70. Indian Statistical Institute, Calcutta.
71. Indian Veterinary Research Institute, Izatnagar.
72. Indira Kala Sangeet Vishwavidyalaya, Khairagarh.
73. Indira Gandhi National Open University, New Delhi.
74. International Institute for Population Science, Bombay.
75. Jadavpur University, Calcutta.
76. Jamia Millia Islamia, New Delhi.
77. University of Jammu, Jammu.
78. Jawaharlal Nehru Krishi Viswavidyalaya, Jabalpur.
79. Jawaharlal Nehru Technological University, Hyderabad.
80. Jawaharlal Nehru University, New Delhi.
81. Jiwaji University, Gwalior.
82. University of Jodhpur, Jodhpur.
83. Kakatiya University, Warangal.
84. University of Kalyani, Kalyani.
85. Kameshwar Singh Darbhanga Sanskrit University, Darbhanga.
86. Kanpur University, Kanpur.
87. Karnatak University, Dharwad.
88. Kashi Vidyapeeth, Varanasi.
89. University of Kashmir, Srinagar.
90. University of Kerala, Trivandrum.
91. Kerala Agricultural University, Trichur.
92. Konkan Krishi Vidyapeeth, Dapoli.
93. Kumaun University, Nainital.

94. Kurukshetra University, Kurukshetra.
95. Lalit Narayan Mithila University, Darbhanga.
96. University of Lucknow, Lucknow.
97. University of Madras, Madras.
98. Madurai Kamaraj University, Madurai
99. Magadh University, Bodh Gaya
100. Maharshi Dayanand University, Rohtak.
101. Mahatma Phule Krishi Vidyapith, Ahmednagar
102. Mangalore University, Mangalore
103. Manipur University, Canchipur, Imphal
104 Marathwada University, Aurangabad
105 Marathwada Krishi Vidyapeeth Parbhani
106. Meerut University, Meerut
107. Mohanlal Sukhadia Vishwavidyalaya, Udaipur
108 Mother Teresa Women's University Kodaikanal
109. University of Mysore, Mysore
110. Nagarjuna University, Guntur
111 Nagpur University, Nagpur
112 Narendra Dev University of Agriculture & Technology, Faizabad
113 The National Law School of India Bangalore
114. North Bengal University, Darjeeling
115 North Eastern Hill University Shillong
116 North Gujarat University Patan Mehsana Dt
117. Orissa University of Agriculture & Technology, Bhubaneswar
118 Osmania University Hyderabad
119 Pondicherry University Pondicherry
120 Punjab University Chandigarh
121 Patna University Patna
122 University of Poona, Poona
123 Postgraduate Institute of Medical Education and Research, Chandigarh
124 Punjab Agricultural University Ludhiana
125 Punjab University Patiala
126 Punjabrao Krishi Vidyapeeth Akola
127 Rabindra Bharati University Calcutta
128 University of Rajasthan Jaipur
129 Rajendra Agricultural University Samastipur
130 Ranchi University Ranchi
131 Rani Durgawati Vishwavidyalaya Jabalpur
132. Ravishankar University Raipur
133 Rohilkhand University Bareilly
134 University of Roorkee Roorkee
135. Sambalpur University Sambalpur
136 Sampurnanand Sanskrit Vishwavidyalaya, Varanasi
137 Sardar Patel University Vallabh Vidyanagar
138. Saurashtra University Rajkot
139. School of Planning and Architecture New Delhi.
140 Sher-e-Kashmir University of Agric Science & Technology, Srinagar.
141 Shivaji University, Kolhapur.
142 Shri Jagannath Sanskrit Vishwavidyalay
143 SNDT Women's University, Bombay.
144 South Gujarat University, Surat.
145 Sree Chitra Tirunal Institute for Sciences & Technology, Trivandrum.
146 Sri Krishnadevaraya University, Anan
147 Sri Padmavati Mahila Visvavidyalayam pati
148 Sri Sathya Sai Institute of Higher Le Anantapur
149 The Tirupati Kendriya Sanskrit Vidya Tirupati
150 Sri Venkateswara University, Tirupati
151 Tamil University, Thanjavur.
152 Tamilnadu Agricultural University, C tore
153 Thapar Institute of Engineering and Tec gy Patiala
154 Tata Institute of Social Sciences, Bo
155 University of Agricultural Science, H
156 Utkal University, Bhubaneswar.
157 Vidyasagar University, Midnapore.
158 Vikram University, Ujjain.
159 Visva Bharati, Santiniketan.

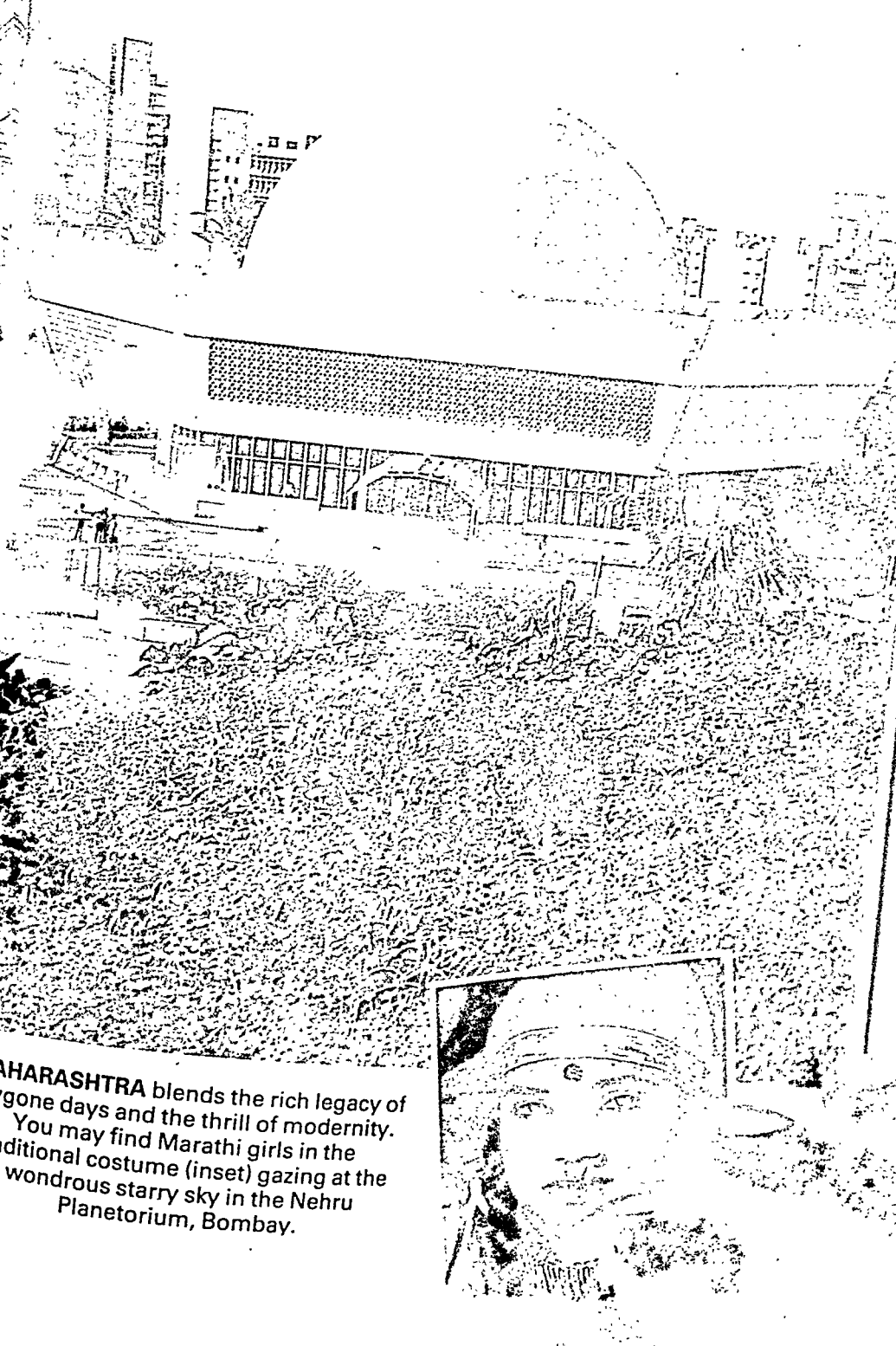
India is said to have the third l number of scientific personnel in the

The world of Indian science is dom by three academies. 1. *Indian National ce Academy, Delhi. 2. Indian Acade Science, Bangalore and 3 National Ac of Sciences India, Allahabad.*

The responsibility for research in In shared among various councils, comm and departments, all of them functi under the aegis of the Central or governments. Important among them ar Council of Scientific and Industrial Res (CSIR), the Indian Council of Medic search (ICMR), the Indian Council of cultural Research (ICAR), the Central C for Research in Indian Medicine Homeopathy, the National Committee vironmental Planning and Co-ordi (NCEPC), the Department of Atomic E (DAE) and the Department of Space (



GOA beckons you
beautiful white sands
bright sun. Welcome to
its beaches: Colva, Calang
Anjuna, Vagator,
Miramar, Majorda,
the very names w
fascinate you. Goa is
km from Bombay. Has
and rail links.



AHARASHTRA blends the rich legacy of
rgone days and the thrill of modernity.
You may find Marathi girls in the
ditional costume (inset) gazing at the
wondrous starry sky in the Nehru
Planetorium, Bombay.

The Gir forest of **GUJARAT** is world famous. It is the only remaining home of the Indian lion. In an area of 1,515 sq km there are about 200 lions. Nearest airport is Keshod – 86 km from Sarangir via Veraval. Sarangir is on the metre-guage line of the Western Railway. By road, it is 127 km from Junagadh via Keshod and 43 km from Veraval.

CHANDIGARH lies on the hills of the Himalayas. The Rock G
kadem. The city planned by the French architect Le Corbus
north of Delhi.

The unspoilt loveliness of the Dal Lake in **KASHMIR** never tires you. The houseboats and the country-crafts paddled by village folk selling flowers and fruits are part and parcel of the lake life. Inset: a Drogpas beauty from Ladakh.

SIKKIM lies on the lap of the Himalayas bordering China. Flowers bloom under the canopy of snow-clad mountains. The Children's Park in Gangtok houses exotic dragons. The nearest airport is Bagdogra in West Bengal. From there a trip by road via Darjeeling is most enchanting.

TRIPURA offers you the chorus of the sowing season. The second smallest state in India, Tripura has many charms of exotic nature. The neighbouring **MIZORAM's** great asset is its accomplished women folk. They are well educated, well groomed and mod.

TOURISM: LARGEST EARNER

Tourism is the largest single foreign exchange earner for the country — Rs.1800 crore in 1986. The figure is expected to be around Rs. 2000 crore in 1987. This is mostly accounted for by the expenditure on food and accommodation in this country.

Since the level of earning exceeds that of India's export of any single product or project, the importance of tourism in India's economy cannot be overemphasised. Everybody agrees that what India has so far achieved is only a modicum of its vast potential.

The target of foreign exchange earning from tourism of Rs. 4000 crore by 1990 is not overambitious when judged against global trends. The global earnings from tourism in 1986 was of the order of $ 115 billion contributed by 340 million tourists.

Tourism would become the world's major industry by the year 2000 according to international experts. Economic analysis of the tourist market indicates that the industry would grow at an annual rate of 3.5 per cent by 1995, making it the world's strongest industry at the outset of the next century.

In spite of India's many-splendoured image, we have been able to get only less than one per cent of the world tourist trade.

The international tourist arrivals during the year 1986 were 14,51,076 including 3,71,026 Pakistan and Bangladesh nationals. The tourist arrivals excluding the nationals of Pakistan and Bangladesh were 10,80,050 showing a growth of 29.1 per cent of 1985.

British tourists constituted the biggest chunk numbering 1,50,000 followed by Americans and West Germans.

Visitors from Italy, Spain and Switzerland increased by 60 per cent while those from the UK, France, Germany and the USA increased by 30 per cent. As far as Asian countries go, the figures are: Sri Lanka — 75,000; Japan — 36,402; Iran — 20,000 and Nepal — 13,957. Visitors from Africa numbered 50,607, an increase of around 25 per cent over the previous year.

There are many bottlenecks for the growth of tourism industry in the country. Misgivings by the visitors about the country, lack of adequate publicity, delay in airports and shortage of hotel rooms are a few of them. However the country is slowly gearing up to grab her legitimate share in the international tourism industry.

India's aim to earn Rs. 4000 crore out of tourism by 1990 is no easy task. This will involve large investment in the industry and infrastructure facilities. The centre has several

Indrail Passes Earn $ 9 m

Government has earned more than $9.1 m through the sale of Indrail passes to foreigners and Indians living abroad.

Official sources said the passes, issued to encourage tourism in the country, can be had only in US dollars. They are for air-conditioned, first class, AC chair car, two-tier and second class for periods from seven to 90 days. Children below 12 are required to pay half the fare.

Since its introduction on June 1, 1977 till March 1987, 1,24,296 travellers took advantage of the scheme.

A major hitch in the facility is that Indrail passes do not guarantee reserved accommodation although assistance is provided from the foreign tourist quota. Now certain tourist agencies are authorised to sell the passes in dollars at various railway stations.

● ● ●

The validy of Indian Airlines domestic tickets issued against rupee fare will now be for six months from the date of issue. Until recently, the validity of these tickets was only for three months.

With a view to improving passenger convenience, an air traveller holding flight tickets for different sectors issued against rupee tariff can now use any of the coupons in any sequence preferred by the passenger within the validity period of six months from the date of original issue

These new regulations came into force from Saturday, March 7, 1987

plans including development of some of the tourist centres at 100 identified places with good potential for growth.

The major facility needed is hotels. As it is there is shortage of accommodation. It is officially estimated that against the requirement of 59,000 hotel rooms, the availability is only around 34,000. Development plans are under way to ensure the addition of 25,000 hotel rooms.

USA: World's Largest Earner

World's number-one earner in tourist industry now is the United States, followed by Italy, Spain, France and Britain

Britain, the fifth in the list has targeted to attract a record 14 6 million tourists in 1987—6 per cent more than 1986. There visitors are expected to spend £ 7500 million – an increase of 12 per cent over 1986.

According to the latest annual report of the British Tourist Authority (BTA) Britain was able to attract 13 8 million tourists spending £6705 million in 1986 despite the deterrent effects of the Chernobyl nuclear disaster and the threat from international terrorism

BTA expects that the tourism industry will be generating £23000 million per year for Britain by the early 1990s. During 1987 it will have injected 50,000 new jobs into the economy, providing full-time employment for 1 4 million people

Of the 13 8 million visitors Britain had in 1986, some 60 percent were from West Europe, 21 percent from North America and 19 percent from other areas of the world.

BTA is opening a new office in India during 1988 as India and the far East were seen as the future growth markets for inward tourism.

According to a BTA survey, the main attractions of Britain are its heritage, pageantry, shopping, countryside, friendly people, interesting society and the chance to speak and learn English (BIS).

It is to be admitted that all the state governments are not as keen as they should be to promote tourism. Some of the states have not accepted the central directive to grant tourism the status of an industry. This facility would have made the hotel industry eligible for certain additional incentives and concessions.

The inadequate development of modern means of transport has been another problem area. More modern cars and improved transport systems, may, however, be of limited use until the Indian roads are upgraded. Even the highways are not often maintained properly and sub-standard repair-work goes on reflecting the combined negligence of contractors and engineers. So the government's decision to permit multinational car rental services like 'Avis and Hertz' to operate in India is to be viewed with caution and apprehension.

The government plans to promote adventure tourism in India in a big way with emphasis on sports like mountaineering, river rafting and canoeing. Around 100 sites around the country have been identified for adventure tourism, in the first phase 30 sites would be developed. Emphasis would also be given to economy class domestic tourists with government building yatri niwass and low budget hotels. Places of special interest like fairs and religious places which were of significance to Buddhist tourist would also receive attention.

A marketing campaign has been launched in the Western countries which projects India through various media like television to inform the tourists about India. New areas for potential tourists like Spain and Latin America are also being taken up and some of the advertisements, documentaries and brochures have been taken out in Spanish.

There is lack of good souvenir industry in India. The country's handicrafts and handlooms could provide a good base for the industry which is now virtually non-existent.

According to the latest annual report of the Ministry of Tourism, the highlights of tourist promotional activities overseas were:

1. In order to cash in on the positive publicity generated by the festival of India, a massive advertising campaign entitled "Have the Festival of Your Life in India, It's wonderful" was launched in the print media in the USA.

2. Promotional efforts were diverted to

Hotel Management Institutes in India

Institute of Hotel Management
Catering & Nutrition
Library Avenue, Pusa
New Delhi-110 012

Institute of Hotel Management,
Catering Technology & Applied Nutrition
Veer Sawarkar Marg, Dadar
Bombay-400 028

Institute of Hotel Management
Catering Technology & Applied Nutrition
C.I.T. Campus, P.O. Tharamani
Madras-600 113.

Institute of Hotel Management,
Catering Technology & Applied Nutrition
P-16, Taratola Road
Calcutta-700 088

Institute of Hotel Management
Catering Technology & Applied Nutrition
Nehru Park Boulevard Road
Srinagar-190 001

Institute of Hotel Management,
Catering Technology & Applied Nutrition
18-B, Ashoka Marg
Lucknow-226 001

Institute of Hotel Management
Catering Technology & Applied Nutrition
Veer Surendra Sai Nagar
Sainik School Road
Bhubaneswar-751 004

Institute of Hotel Management
Catering Technology & Applied Nutrition
P.O. Alto Betim, Bardez
Goa-403 112

Institute of Hotel Management
Catering Technology & Applied Nutrition
A.T.I. Campus, Vidyanagar
Hyderabad-500 007

Institute of Hotel Management
Catering Technology & Applied Nutrition
S.J. Polytechnic Campus
Bangalore-560 001

Institute of Hotel Management
Catering Technology & Applied Nutrition
II, I.T.I. Campus
Bhopal-462 023

Institute of Hotel Management
Catering Technology & Applied Nutrition
Govt. Polytechnic Compound, Ambawadi
Ahmedabad-380 015

Foodcraft Institute
Kalamassery
Alwaye-683 104

Foodcraft Institute
Engineering College Hostel Campus
Shivaji Nagar
Pune-411 005

Foodcraft Institute
Sector-26
Chandigarh-160 026

Foodcraft Institute
M.I. Road
Jaipur-302 001

Foodcraft Institute
Thuvakkudi
Tiruchirapalli-620 015

Foodcraft Institute
31-Industrial Estate
Patna-800 015

Foodcraft Institute
Old Gargi College Building
Behind Lady Sriram College
Lajpat Nagar-IV
New Delhi-110 024

Foodcraft Institute
(University Polytechnic Campus)
Aligarh Muslim University
Aligarh-202 001

Foodcraft Institute
Kufri
Shimla-171 019

Foodcraft Institute
Beltola Basistha Road
Ajanta Path, P.O. Beltola
Guwahati-781 028

National Council for Hotel Management & Catering Technology
Library Avenue, Pusa Complex
New Delhi-110 012

Foodcraft Institute
Vishakha Valley School C
Visakhapatnam-530 04

Foodcraft Institute
Maratha Boarding Build
Jayandergani
Gwalior-474 009

wards generating offseason traffic from the European countries by launching a programme entitled "Affordable India" in collaboration with Air India. Under this scheme, special seasonal discounts on deluxe hotels and transport were made available during the year 1986.

3. In order to capture stopover traffic from Australasia "India on the House" scheme was implemented in collaboration with Air-India.

4. From the East Asia region, efforts were made to promote Buddhist traffic and publicise India as an attractive destination for honey-mooners.

5. A quiz contest on India was also launched with a very good response (over four lakh entries). A special quiz on India was launched in the German language in Germany.

6. India was promoted as a family holiday destination in the West Asian Region.

7. Due to the proximity of India to the UK, India was promoted as a holiday destination both in the print media as well as on TV.

Since 1985-86 the promotion of *domestic tourism* is being accorded high priority. A campaign was launched in the print media in the year 1985-86 with the byeline "Discover India-Discover Yourself-in India you will seee the World" The second phase of this campaign was hard-sell — It promotes lesser known but "Affordable Destinations" of tourist interest like Mandu, Periyar, Andamans and Valley of Flowers.

During the very year a parallel campaign to arouse interest amongst the youth with the byeline "Discover India," a quiz contest was also launched in the print media. The underlying theme is to motivate people of different cultures and languages to travel and integrate.

Today, domestic tourism is on the increase and people are evincing keen interest in their own cultural heritage and are travelling in large numbers to holiday and cultural destinations. Thus the publicity campaign is aimed at various segments of the domestic tourist market.

Now, a heartening news: India bagged the prestigious international *PATA Gold Award* fo 1987 for mounting the best campaign fo publicising "lesser known tourist destina tions." The gold award of the Pacific Are Travel Association (PATA) was received by Mr S.K. Misra, secretary, ministry of tourism, a Osaka, Japan.

THE SEVENTH PLAN

The Seventh Five-Year Plan (1985-90) envisages an aggregate outlay of Rs. 348,148 crore a public sector outlay of Rs. 180,000 crore. The draft plan has become a national document for the planning process in the country till 1990.

The plan envisages a total investment of Rs. 3,22,366 crore. Ninetyfour per cent of the total investment would be financed from domestic fund, with a "tremendous" effort at resource mobilization.

Of the *public sector* outlay, the investment component would be Rs. 1,54,218 crore. This investment would be financed to the extent of Rs. 54,422 crore (32 per cent) by own savings, Rs. 84,062 crore (56 per cent) by draft on private savings and about Rs. 18,000 crore by foreign borrowings.

The outlay for the central sector will be Rs. 95,534 crore, states Rs. 80,698 crore and Union territories Rs. 3,768 crore.

The Plan places the [illegible] 14,000 crore and net borrowings at Rs. 30,56 crore.

The target of additional resources mobiliza tion by the Centre is placed at Rs. 22,212 crore The success of the Plan is crucially dependen on the achievement of the targets of additiona resources mobilization and of public savings

As postulated in the approach paper, ful employment and productivity, along with in frastructure and human resource develop ment have been taken as the guiding princi ples.

Continued self-sufficiency in food and ex pansion of national system of food securit have been given high priority. Special efforts would be made to increase the production of oilseeds, pulses, vegetables and horticulture. Productivity in agriculture would be increased through more effective utilization of irrigation and other potentials. In industry emphasis is being laid on modernization and high tech-

In the field of employment, a major objective of the Plan is to ensure that growth of employment opportunities is faster than the growth of labour force.

The employment potential is expected to increase by 40 million standard person years against an addition to the labour force of 39 million during the plan.

With a view to achieving a faster rate of growth in agriculture and industry, emphasis is laid on investment in infrastructure.

This is done to see that shortages in power, transport and coal would not arise for the scale of activities envisaged in the Plan, which provided a significant increase in the share of energy to the tune of 32 per cent in the public sector outlays—the largest.

One more major thrust in the Seventh Plan is human resources development.

Public sector outlays for social services show a considerable increase compared to the Sixth Plan. Besides expansion of the existing programmes in education, health, science and technology, new initiatives and innovative measures are contemplated in this area.

The balance of payment projections over the five years (1985-90) estimate exports at Rs. 60,653 crore with imports at Rs. 95,437 crore, giving an adverse trade balance of some Rs. 34,700 crore.

Plan Estimates

The following are estimates of financial resources for the public sector plan for 1985-90.

Item	Amount (Rs. crore at 1984-85 prices)
Balance from current revenues at 1984-85 rates of taxes	(—)5,249
Contribution of public enterprises	35,485
Market borrowings (net)	30,562
Small savings	17,916
State provident funds	7,327
Term loans from financial institutions	4,639
Miscellaneous capital receipt (net)	12,618
Additional resource mobilization	44,702
Net capital inflow from abroad	18,000
Deficit financing	14,0
Aggregate resources	1,80,0

Public Sector

The following are the public sector outlay in the Seventh Plan.

Sl. No.	Heads of development	(Rs. crore) Total
1.	Agriculture	10,573 62
2.	Rural development	9,074.22
3	Special area programmes	3,144.69
4.	Irrigation and flood control	16,978.65
5.	Energy	54,821.21
	Power	(include)
	New and renewable sources of energy	34,273.46
	Petroleum	519.55
	Coal	12,627.67
6.	Industry and minerals	7,400.58
		22,460.83
	Village and small scale industry	(include)
	Large and medium industry	2,752.74
7.	Transport	19,708 09
		22,971.02
	Railways	(include)
	Roads	12,334.55
	Road transport	5,200.04
	Other transport	1,990.10
8.	Communication, information and broadcasting	3,446.33
		6,472.46
	Telecommunications	(include)
9.	Science and technology	4,538.74
10.	Social services	2,466.00
		29,350.46
	Education, culture and sports	(include)
	Health including medical	6,382.65
	Family welfare	3,392 89
	Housing and urban development	3,256 26
	Water supply and sanitation	4,259.50
11.	Labour and labour welfare	6,522.47
	Total	333 72
		180,000.00

Economic planning in India is under the aegis of the *Planning Commission*. In March, 1950, the Government of India set up a Planning Commission to prepare a plan for 'the most effective and balanced utilization of the country's resources' The Planning Commission has since been functioning as the kingpin of national development.

Planning Commission (as on Dec. 1, 1987): Prime Minister Rajiv Gandhi (Chairman), Dr. Manmohan Singh (Dy Chairman), Dr. M. G. K. Menon, Abid Hussain, Hiten Bhaiya, Y. K. Alag, P. N. Srivasthava and Dr. Raja J. Chelliah.

First Plan 1951-56. The first Plan with a total outlay of Rs. 2378 crore was a rather haphazard venture, as the Planning Commission had no reliable statistics to work upon Besides, the plan had to be co-related to the prevailing activities of various government departments. The result was patchwork of isolated projects. All the same, the plan had a national character and was based on a rational hypothesis It laid emphasis on agriculture, irrigation, power and transport so as to provide an infrastructure for rapid industrial expansion in future The plan turned out to be more than a success, mainly because it was supported by two good harvests in the last two years

Second Plan 1956-61. The Second Plan (1956-61) was a big leap forward It laid special stress on heavy industries. The industrial policy resolution was amended so as to shift the primary responsibility for development on the public sector Private sector was left to handle consumer industries. But the great quantity of imports that the Plan envisaged in both public and private sectors, practically denuded India's accumulated sterling balances (as much as Rs 500 crores) in two years and compelled the country to seek extensive foreign aid Agriculture and small-scale industries remained sluggish, without adding any momentum to development.

Third Plan 1961-66. The Third Plan rode on a wave of high expectations following overall growth of the Indian economy in the first two plan periods. The Third Plan aimed at establishing a self-sustaining economy. Internal resources having been strained to the utmost, the Plan had to rely on heavy foreign aid.

During the Third Plan, national income (revised series) at 1960-61 prices rose by 20 per cent in the first four years but registered a decline of 5.6 per cent in the last year. Per capita real income in 1965-66 was about the same as it was in 1960-61.

A growing trade deficit and mounting debt from the International Monetary Fund. The rupee was devalued in June, 1966 to little purpose, as it soon turned out. The Third Plan had become stuck.

Interim Planning. The Third Plan having gone awry, planning itself had become discredited in the eyes of many and demands were made from different quarters to declare a Plan holiday But neither the Government nor the Planning Commission admitted failure. They refused to fall in with the demand for a Plan holiday and proceeded to draw up the Fourth Plan as from 1966-67. But the economy had so far degenerated that the Fourth Plan could not be started in time, that is to say, in 1966. Instead, as a stop-gap arrangement planning was made annual. The Annual Plans continued from 1966 to 1969—1966-67, 1967-68 and 1968-69

Fourth Plan 1969-74. The Fourth Plan (1969-74) officially commenced on April 1, 1969 with the publication of the Draft Plan. *Growth with stability* was the main objective of the Plan Agriculture was expected to lead the growth with a rate of 5 per cent per annum. Such a growth in agriculture would set up a chain reaction in the economy. The target for the growth rate of industry was set at about nine per cent per annum. Altogether, the national income was expected to increase at the rate of 5 5 per cent per annum. Allowing for the increase of population at the rate of about 2.5 per cent, the per capita income was expected to increase at the rate of 3 per cent per annum or about 16 per cent in the Fourth Plan period

Fifth Plan 1974-79. The Fifth Plan draft as originally drawn up was part of a long term *Perspective Plan* covering a period of 10 years from 1974-75 to 1985-86. The perspective plan attempted to co-ordinate various sectors of the economy in terms of the new slogan *Garibi Hatao* (Remove Poverty). The long term rate of growth which the economy was expected to achieve on a self-sustaining basis was put up at 6.2 per cent per annum.

By the time the Fifth Plan was approved by the National Development Council (Sept. 1976) its premises had become obsolete and the total outlay had to be increased from Rs. 37,463 crore to 39,303 crore.

came into power. They scrapped it unceremoniously.

The Janata government reconstituted the Planning Commission and announced a new strategy in planning. The strategy involved a change in objective and pattern. The objective was laid down as *Growth for Social Justice* instead of *Growth with Social Justice*— a distinction without a difference. The new pattern was the *Rolling Plan* which merely meant that every year the performance of the Plan will be assessed and a new Plan based on such assessment will be made for the next year—a continuous planning, in fact. The rolling plan started with an annual plan for 1978–79 and as a continuation of the terminated V plan.

Sixth Plan (1980-81—1984-85) had been formulated after taking into account the achievements and short-comings of the past three decades of planning. The Sixth Plan actual expenditure stood at Rs. 1,09,291.7 crore (current prices) as against the envisaged total public sector outlay of Rs. 97,500 crore (1979-80 prices) accounting for a 12 per cent increase in nominal terms. The average annual growth rate for the Sixth Plan works out to 5.2 per cent, which is equal to the targetted growth rate for the plan period.

POWER CRISIS GRIPS NATION

Millions of people sweated it out last summer due to a power crisis in several states triggered by repeated failure of rains and under utilization of power generation facilities.

Eventhough the power generating capacity in the country has increased from 1700 MW at the beginning of the first plan to 49,300 MW by the end of the second year of the seventh plan, the demand has far outstripped the supply.

A national survey conducted by PTI in June 1987 found that besides domestic consumers, industries were also hit by the power crisis. Denial of adequate power has resulted in heavy loses and has affected production in some core-sector industries as well as small-scale concerns.

Inadequate power supply has been attributed to several factors, including delays in the commissioning of projects, extending in some cases to several years for reasons varying from poor project management to lack of funds.

The Seventh Plan envisages capacity induction of around 23,000 MW. However, by the end of 1989-90, a shortfall of 8,500 MW peaking capacity and 5.4 per cent energy shortfall is feared inspite of the 19 per cent plan outlay which is to be utilized to augment power generation in the country

The amount spent since 1950 in the power sector amounts to Rs. 34,000 crores and now in the seventh plan alone the same amount has been allocated.

Some states using *coal* for power generation, eg. Karnataka, have also found it difficult to meet the demand since the coal available is not enough nor is it of good quality.

However, in some states like Maharashtra supply of power is more than adequate prompting them to supply its surplus to neighbouring states

Out of the total installed power capacity in the country as on March 31, 1985, *nuclear power* constituted 2 6 per cent. India is one of the nine countries in the world after the U.S., the USSR, the U K , France and Canada which can design, construct, commission and operate a nuclear station all on its own. Almost 88 per cent of the cost of an Indian nuclear reactor now represents local cost.

Against this background, the conversion of the Nuclear Power Board to the *Nuclear Power Corporation* in September, 1987 with an ambitious target of producing 10,000 MWe by 2000 A.D is a landmark in the history of power planning in the country.

At present there are three nuclear power stations in operation in India—at Tarapur Rajasthan and Madras. They have a total capacity of 1230 MWe. Where the first Atomic Power Station was 1969, it was the first Asia, outside the 18 years consi gathered not tors in a reli ing complet

Petroleum Bill Soaring

India's import bill for crude oil and petroleum products is expected to be Rs. 5,400 crores during 1987-88.

This is about Rs. 1,800 crores more than the current financial year, but almost the same level as the import bill of three years ago. The total import bill for 1984-85 was Rs. 5345 crores.

According to the Petroleum Conservation Research Association, the net import of petroleum into India at the end of the Seventh Plan would be around Rs. 6400 crores assuming a growth rate of 7 per cent.)

The country plans to import 17 million tonnes of crude and three million tonnes of petroleum products in 1987-88. This is three million tonnes more than the total import of crude and products expected in the current financial year.

The higher import of crude and products had been necessitated by the growing demand which is expected to increase by seven per cent.

The total consumption of petroleum products in 1987-88 is expected to be 47 million tonnes, three million tonnes more than the current year.

Among the petroleum products, high speed diesel oil (HSD) and kerosene accounted for more than 50 per cent of the total consumption of petroleum products in the country.

Despite the steep hike in the price of petroleum products last year, mainly as a revenue yielding measure, the overall growth in consumption is estimated at seven per cent.

The average price of imported crude, particularly upto December 1986, was only $ 14.5 per barrel consequent on the fall in the international prices. However, the average price of imported crude during 1987-88 is expected to remain at $ 18 per barrel.

India imported more than 50 per cent of its requirements of crude last year at the then prevailing market prices. The country saved nearly Rs. 1,500 crores in foreign exchange on import of crude and petroleum products in the current financial year by taking advantage of the price fall.

Meanwhile, the indigenous production of crude in 1987-88 is expected to be only a little over 30 million tonnes, almost the same as 1986-87 when production was 30.34 million tonnes. In 1985-86 it was 30.168 million. According to official sources no significant increase in domestic oil production is envisaged in the near future, despite the repeated claims of Oil and Natural Gas Commission about new oil and gas finds.

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Natural gas would emerge as "a significant" source of commercial energy in India in the immediate future as domestic oil production has reached a plateau and world oil prices, are set to rise by the end of this decade, according to the new chairman and managing director of the Gas Authority of India Limited (GAIL), Mr. Vineet Nayyar.

Mr. Nayyar said India could produce 50 million cubic metres of gas per day in the eighth plan. Currently, 15 million cubic metres of gas is flared by the Bombay High and another 15 million cubic metres would be available once the H-B-J pipeline construction was over, he said.

Besides, Assam and Tripura hold promise of gas production to an extent of six to eight million cubic metres per day.

New nuclear power units are fast coming up. Two units of 235 MWe at Narora (U.P.) are expected to be commissioned in 1988 and 1989 and two more units of 235 MWe at Kakrapar (Gujarat) by the end of 1990 and 1991. Work has been initiated at a new site, Kaiga in Karnataka and at Rawatbhata in Rajasthan, as an expansion of the existing Rajasthan Atomic Power Station.

Each of these projects consists of two units of 235 MWe and is expected to be commissioned in 1994. Some more projects of 235

MWe are visualized in the 15-year programme. In parallel with this 235 MWe programme, design work on 500 MWe units is in an advanced stage and as per current plans, the first two units of 500 MWe are expected to be commissioned in 1995. This will be followed by a series of additional 500 MWe units to attain a capacity of 10,000 MWe by the turn of the century.

This programme based on the natural uranium fuelled Pressurized Heavy Water Reactor (PHWR) units (with the sole exception of Tarapur which has boiling water reactor (BWR) units) constitutes the first phase of the nuclear power programme in India.

The second phase of the programme will *utilize the plutonium recovered from the spent fuel along with the unused U-238 from the PHWRs to fuel fast breeder reactors to generate electricity and more plutonium.* As a step towards realizing the second phase, a 15 MWe Fast Breeder Test Reactor was commissioned in October 1985.

The third phase of the nuclear power programme will employ the U-233-Thorium cycle to utilize the country's abundant resources of thorium to meet the country's energy requirements in the latter half of the 21st century.

The target for power generation during 1985-86 was fixed at 170 billion units. Of this, 110 billion units were to be generated by thermal stations, four billion units by nuclear power plants and 56 billion units by hydro stations. The actual generation during 1985-86 was 170.037 billion units with 114.119 billion units being generated by thermal stations, 4.985 billion units by nuclear power plants and 50.933 billion units by hydro stations.

The total length of transmission lines of 66 kV and above stood at 1.62 lakh km in March 1986. The highest transmission voltage in the country at present is 400 kV and about 7800 ckt km of 400 kV lines have been constructed upto March 1986.

Rural Electrification: Out of a total of 5.76 lakh villages, 3.9 lakh villages have been electrified by the end of 1986.

Coal: In the year ending March 31, 1987 the country achieved a record production of 165 million tonnes. Coal reserves of India as per assessment made by the Geological Survey of India upto 1986 are 1,59,299.16 million tonnes, the largest deposit being in Bihar (56,612.30 million tonnes), followed by Orissa (34,463.01 million tonnes), West Bengal (28,154.16 million tonnes) and Madhya Pradesh (23,856.44 million tonnes).

Lignite: Lignite deposits occur in India mostly at Neyveli in the South Arcot district of Tamil Nadu (about 3300 million tonnes or roughly 90% of the total lignite reserves in the country).

The lignite reserves at Neyveli are exploited by the Neyveli Lignite Corporation Ltd. (NLC). The NLC maintained its excellent production peformance in 1985-86 by producing 7.287 million tonnes It produced 3938 million units of power too

FOOD & AGRICULTURE

India's agricultural growth from the days of the begging bowl to the days of philanthropy has been phenomenal. The Green Revolution brought about by scientific methods of cultivation helped her not only to brave the ravages of flood and drought but also to offer food aid to the less fortunate masses in Asia and Africa

The year 1985-86 turned out to be a bright one for Indian agriculture when the overall production reached 150.5 million tonnes—5 million tonnes more than the previous year's production. The two major cereals rice and wheat, as also fibre crops established new records in production.

The record foodgrain production of 152.4 million tonnes during 1983-84 was a *signal* achievement for India, receiving *world-wide* acclaim What is particularly *notable is th*[illegible] while the *First Green Revolution* of 1967-68 arose from introduction of new *high yield*[illegible] varieties of Mexican wheat and *dwarf* [illegible] varieties evolved by the *Internation*[illegible] Research Institute, the *spectacular in*[illegible] production during 1983-84 was [illegible] to organized input *managemen*[illegible] visional figure for 1984-85 is [illegible]

The year 1983-84 cou
the *Second Green Revo*

sive increase in production through expansion in supplies of inputs and services to the farmers, extension and better management. As compared to the previous years, the increase in 1983-84 in the distribution of seed, fertiliser and pesticides showed a marked increase. The expansion in the provision of institutional credit for agriculture was also encouraging.

The highly notable and encouraging feature of this second Green Revolution is that whereas the first Green Revolution of 1967-68 was confied mainly to a few progressive areas of Punjab, Haryana and West U.P., the second Green Revolution of 1983-84 has witnessed tremendous progress in Eastern and Central States including West Bengal, Bihar, Orissa, Madhya Pradesh and U.P. where the growth rates had been relatively slow.

The overall growth in agriultural production had a very salutary effect on the economy. Supplies of rice, wheat and other cereals have been in abundance and the prices have been ruling mostly at a lower level than last year. Procurement of rice and wheat touched a new peak and the stocks of foodgrains also reached a record level.

Operation Flood III

World Bank has approved a 300-million dollar loan for Operation Flood phase-III.

The loan was an outcome of the joint World Bank—EEC appraisal mission that had visited India in March and April, 1987.

The loan is preceded by an increase in the rate of interest charged to cooperatives by the Indian Dairy Corporation, as was suggested by the World Bank team. It has been raised from 8.5 per cent to 10 per cent.

The bank in a letter has observed that Operation Flood has made excellent progress and that the cooperative model has been fundamentally successful in benefitting both consumers and producers.

Operation Flood phase-III will involve a otal investment of Rs. 681.29 crore and will be implemented during the Seventh Plan.

Enrolment of more members in the dairy cooperatives, setting up more dairy co-operatives, increasing milk processing and marketing facilities and consolidation of existing facilities are the basic objectives of this programme.

Operation flood was launched in 1970 by the Indian Government with massive assistance from the World Food Programe in the shape of skimmed milk powder and butter oil. In its first phase, the programme received 1,26,000 tonnes of skimmed milk powder and 42,000 tonnes of butter oil.

Operation Flood phase-II was started in October 1978 and the total investment was Rs. 485.58 crore.

Area, Production and Yield of Principal Crops

(Year relates to Crop Years (July-June)

Crops		1950-51	1980-81	1985-86
Rice	A	308.10	401.52	409.12
	P	205.76	536.31	641.53
	Y	668.00	1336.00	1568.00
Wheat	A	97.46	222.79	230.74
	P	64.62	363.13	468.85
	Y	663.00	1630.00	2032.00
Jowar	A	155.71	158.09	157.89
	P	54.95	104.31	101.23
	Y	353.00	660.00	641.00
Bajra	A	90.23	116.57	106.89
	P	25.95	53.43	36.83
	Y	288.00	458.00	345.00
Maize	A	31.59	60.05	58.79
	P	17.29	69.57	68.90
	Y	547.00	1159.00	1172.00
Cereals (Total)	A	782.30	1042.10	1032.44
	P	424.14	1189.62	1375.05
	Y	542.00	1142.00	1332.00
Pulses (Total)	A	190.91	224.57	238.18
	P	84.11	106.27	129.64
	Y	441.00	473.00	544.00
Gram	A	75.70	65.84	76.54
	P	36.51	43.28	56.83
	Y	482.00	657.00	743.00
Foodgrains (Total)	A	973.21	1266.67	1270.62
	P	508.25	1295.89	1504.69
	Y	522.00	1023.00	1184.00
Groundnut	A	44.94	68.01	73.11
	P	34.81	50.05	55.47
	Y	775.00	736.00	759.00
Rapeseed and Mustard	A	20.71	41.13	38.03
	P	7.62	23.04	26.39
	Y	368.00	560.00	694.00

Oilseeds	A	107.27[1]	176.03	188.71
[Total (a)]	P	51.58[1]	93.72	111.54
	Y	481.00[1]	532.00	591.00
Sugarcane	A	17.07	26.67	28.62
	P	570.51	1542.48	1716.81
	Y	33422.00	57844.00	59986.00
Cotton	A	58.82	78.23	75.81
(Lint$_2$)	P	30.44	70.10	86.12
	Y	88.00	152.00	193.00
Jute$_3$	A	5.71	9.41	11.48
	P	33.09	65.08	109.52
	Y	1043.00	1245.00	1717.00
Mesta[3]	A	Not	3.59	3.48
	P	Available	16.52	17.76
	Y		828.00	919.00

1. Five Major Oilseeds. 2. Lakh bales of 170 kg each. 3. Lakh bales of 180 kg each.
A-Area in lakh heactares; P-Production in lakh tonnes; Y-Yield in kg per hectare.

A major weakness of Indian agriculture is that more than 2/3rd of the cultivated area is still dependent on rains. This dependence has, however, come down to a large extent in recent years following sustained efforts by both the farmers and the government to adopt appropriate strategies. Despite fluctuations, the average food production over the entire period of the Sixth Plan worked out to 138.20 million tonnes. This exceeded by more than 6 million tonnes the peak production of 131.90 million tonnes achieved during the Fifth Plan period.

Rainfall during the south-west monsoon of 1986 was worse than in the previous years. Despite failure of monsoon during recent years, it was possible to maintain higher levels of production signifying the growing resilience in agricultural sector. The strategy for increasing irrigation potential by two million ha. per year along with greater use of high yielding variety of seeds and improving fertiliser efficiency is yielding results. According to official indication, foodgrains production in 1986-87 is expected to be around 151 million tonnes.

The target for foodgrains production by the terminal year of the Seventh Plan, i.e. 1989-90 has been fixed between 178 and 183 million tonnes. Despite the vagaries of weather, the government is optimistic of achieving the goal. The major thrust programme will be better water management. Simultaneously, efforts for the spread of improved technology including timely use of quality inputs will be pursued.

India: Largest Producer of Sugar

The sugar season 1986-87 ended with an all time high production of 85 lakh tonnes, against a previous record of 84.36 lakh tonnes reached in 1981-82. With this level of production the country has emerged as the largest producer of sugar in the world surpassing Brazil which produces around 80 lakh tonnes of sugar per annum.

The sugar industry reported an extra ordinarily good performance in 1986-87, thanks to the revised sugar policy which provides incentives to both the sugarcane farmers and sugar manufacturers. The policy enabled the industry to bring down sugarcane payment arrears to a minimum of Rs. 16 crores. Besides, the industry has been able to push up the production by as much as 15 lakh tonnes in a single year from 70.03 lakh tonnes in 1985-86 to 85 lakh tonnes in 1986-87.

Despite the sizable increase in the production the country has to import sugar since the consumption has been increasing at a faster rate. The Offtake of sugar from the factories totalled 79.25 lakh tonnes for internal consumption and 22,000 tonnes for exports in 1986-87, against 65.94 lakh tonnes for internal consumption and 33,000 tonnes for exports in 1985-86. In addition, the movement of imported sugar from the ports computes to 9.97 lakh tonnes out of which about 2.40 lakh tonnes have remained in stock with FCI at different consuming centres upto the end of September. The season end figure of movement of imported sugar totalled 16.79 lakh tonnes last season.

The outlook for the nex season is also quite good. Although the sugarcane production may not exceed 175 million tonnes the sugar production is expected to be about 80 lakh tonnes.

The Food Production Gap

Land productivity in world's 11 most populous countries, 1985.

Country	Population (million)	GNP (US $)	Grain Yield (tonnes per hectare)
Japan	122	10,630	5.8
United States	241	15,390	4.8
China	1,050	310	3.9
Indonesia	168	540	3.7
Bangladesh	104	130	2.2
Mexico	82	2,040	2.1
Brazil	143	1,720	1.8
India	785	260	1.6
Pakistan	102	380	1.6
Soviet Union	280	n.a.	1.6
Nigeria	105	730	0.8

Average grain yields in the world's most populous countries reflect differences in climate and soil fertility but also show areas where performance gaps need to be closed. Although the highest yields occur in affluent industrial nations, China and Indonesia demonstrate that low income need not be associated with low yields.

About a third of the world's people live in four countries where productivity exceeds 3.5 tonnes per hectare against a world average of 2.6 tonnes. Another third live in countries where productivity is less than 2 tonnes.

Fertiliser consumption has significantly gone up from a level of 1.1 million tonnes in 1966-67 to 8.7 million tonnes in 1985-86. During 1986-87, the consumption is expected to be of the order of 9.2 million tonnes. By the year 1989-90, a consumption targetof 13.5-14.0 illion tonnes is envisaged.

The retail prices of both imported and indigenous fertilisers remained statutorily controlled under the provisions of the Fertiliser Control Order issued under the Essential Commodities Act, 1955. The prices, however, were revised upward to reduce the burden of subsidy.

In order to ensure availability of good quality seeds, the government set up two national level organizations viz. National Seeds Corporation and State Farms Corporation of India. State Seed Corporations were also set up in nine states. Distribution of certified quality seeds recorded a phenomenal increase from 14 lakh quintals in 1979-80 to 55.83 lakh quintals during 1986-87. The target for 1987-88 has been fixed at 73.00 lakh quintals.

In order to ensure remunerative prices to growers and reasonable prices to consumers, the government announces, each season, procurement/support prices for major agricultural commodities and organizes purchase operation through public agencies. There prices are decided on the basis of the recommendations made by the Commission for Agricultural Costs and Prices (CACP) and in consultation with the state governments, the concerned central Ministries and the Planning Commission.

The development of horticulture also is given greater attention. During 1984-85, the production of *fruits* was estimated at 235 lakh tonnes. The target in the Seventh Plan is fixed at 280 lakh tonnes. During 1984-85 the production of *vegetables* in the country was estimated at 340 lakh tonnes. For the terminal year of the Seventh Plan i.e. 1989-90 the target is fixed at 400 lakh tonnes. The production of *potatoes* has been estimated at 125.7 lakh tonnes during 1984-85. The target of 160 lakh tonnes is set for the Seventh Plan.

Coconut production was estimated at 6620 million nuts during 1985-86. It is targetted to produce 8000 million nuts at the end of the Seventh Plan. In India, Kerala and Andaman &

New 20-Point Programme

The government on August 20, 1986 announced in the two houses of Parliament a revised 20-point programme with a major thrust on poverty alleviation programmes so that they reach all the poor in every village.

"The war on poverty is our first priority. In the past five years, more than ten crores have been raised above the poverty line. Our goal is to remove poverty and create fuller employment" the programme document said.

"The 20-point programme is the cutting edge of the plan for the poor", it pointed out, and said the programme had been restructured in the light of "our achievements and experience and the objectives in the Seventh Plan". The restructured programme renews the commitment to eradicating poverty, raising productivity, reducing income inequalities, removing social and economic disparities and improving the quality of life.

The revised programme also lays emphasis on the creation of a responsive administration envisaging simplification of procedures and promptly attending to public grievances, providing new opportunities to youth, involving them in massive national development projects and special programme for rural labour.

The programme proposes to involve youth in the cleaning Ganga and conservation and enrichment of environment projects. Services of educated youth will also be utilised for imparting mass education.

Though the main thrust of the new programme is on alleviation of poverty, stress is laid on two-child norm and providing equality for women.

The other thrust area under the programme is on the rigorous enforcement of land reforms and new strategy for forestry.

The Programme

1. Attack on rural poverty. 2. Strategy for rainfed agriculture. 3. Better use of irrigation water. 4. Bigger barrels. 5. Enforcement of land reforms. 6. Special programme for rural labour. 7. Clean drinking water. 8. Health for all. 9. Two-child norm. 10. Expansion of education. 11. Justice to scheduled castes and scheduled tribes. 12. Equality for women. 13. New opportunities for youth. 14. Housing for the people. 15. Improvement of slums. 16. New strategy for forestry. 17. Protection of the environment. 18. Concern for the consumer. 19. Energy for the village. 20. A responsive administration.

The first 20-Point Programme announced on July 7, 1985 was revised seven years later on January 14, 1982. Both the programmes were formulated with a view to ameliorate the living condition of the rural poor.

Punjab, Rajasthan and U.P. top among the 22 states in the implementation of the 20-point programme during 1985-86. The ranking of states is done by a monitoring team specially appointed by the government to see how far the 20-point programme has been implemented by the states.

Tamil Nadu, Gujarat, Haryana, Maharashtra, H.P. and Sikkim are the next six states which have made significant progress towards this goal.

The relative position of the 22 states in terms of their ranks are: Punjab (1), Rajasthan (1), Uttar Pradesh (1), Tamil Nadu (4), Gujarat (5), Haryana (5), Maharashtra (5), Himachal Pradesh (8), Sikkim (8), Andhra Pradesh (10), Tripura (10), Karnataka (12), Madhya Pradesh (12), Manipur (14), Orissa (14), Bihar (16), Meghalaya (17), West Bengal (18), Kerala (19), Nagaland (20), Jammu & Kashmir (21) and Assam (22).

World Cereal Output Falls

World cereal production may fall by 17 million tonnes during 1986 according to the latest FAO forecast made in October, 1986. Compared with 1985, while wheat and rice output is expected to increase by 3 and 9 million tonnes respectively, it is the coarse grains which show a major fall of 29 million tonnes in the current year.

Despite the fall in total cereal production, world carry over stocks of cereals are likely to increase by 37 million tonnes reaching the level of 431 million tonnes in 1987 as against 394 million tonnes in 1986.

Ending stocks in wheat and coarse grains are likely to go up by 4 and 35 million tonnes respectively while there will be a shortfall of 2 million tonnes in rice.

The total cereal trade is estimated to be higher during 1986-87. The FAO forecast shows that imports of wheat and coarse grains will increase by 3 and 5 million tonnes respectively while the trade in rice many remain more or less at the 1985-86 level. Both the developing and developed countries are estimated to increase their imports by 2 and 6 million tonnes in 1986-87 compared with 1985-86.

World Cereals

	1985	1986	1987
	(Million tonnes)		
Production			
Wheat	*510*	*513*	—
Coarse grains	*861*	*832*	—
Rice (paddy)	*466*	*475*	—
Total	*1837*	*1820*	—
Stocks			
Wheat	—	*150*	*154*
Coarse grains	—	*193*	*228*
Rice (milled)	—	*51*	*49*
Total	—	*394*	*431*
World imports			
Wheat	—	*86.0*	*89.0*
Coarse grains	—	*84.8*	*90.0*
Rice	—	*11.8*	*11.8*
Total	—	*182.6*	*190.8*

Source: FAO

Nicobar Islands provide agro-climatic conditions suitable for *oil palm* cultivation. In erala this has been taken up by Oil Palm ndia Ltd. which is a joint venture of the Central and State governments. In Andaman & Nicobar Islands, an area of about 1493 ha has been planted by the Andaman & Nicobar Islands Plantation and Forest Development Corporation.

Some of the important achievements of the Animal Husbandry sector during 1985-86: *Milk* production is expected to reach a level of 44.0 million tonnes despite severe drought in many of the major milk producing states. *Egg* production reached a level of 15.9 billion eggs against a target of 15.5 billion eggs. Brroiler production is expected to cross 80 million birds as against 70 million birds during the previous year.

The Integrated Dairy Development Project commonly known as *Operation Flood* mad considerable progress during 1985-86. September, 1986, a total number of 4575 Dairy Cooperative Societies were organize serving 47.49 lakh farm members. The emer ence of a National Milk Grid helps to offs regional and seasonal imbalances in mil collection and distribution. Mother Dair Delhi and Metro dairies of Bombay, Calcut and Madras had a combined total throughp of over 30 lakh litres of milk per day durin 1985-86.

The production of *marine and inland fi* in the country increased by about four tim during the last 35 years. It increased from 7.5 lakh tonnes in 1950-51 to 28.76 lakh tonnes 1985-86. The value of exports of marin products from the country increased by 1 times during the last 25 years. The exports 15,732 tonnes valued at Rs. 392 crores

1960-61 increased to 83,651 tonnes valued at Rs. 398 crores in 1960-61 and to 83651 tonnes valued at Rs. 398 crores in 1985-86.

India is known as the home of *spcies*. Out of the seventy spices listed by the International Organization for Standards, almost all of them are grown in India. The annual production of all the spices put together comes to 1.5 million tonnes. Though fairly large quantities are exported, bulk of the production is consumed within the country. The share of Indian exports in the world trade of spices is about 25%.

Pepper: Among the Indian spices, pepper is the most important. It is native to the Western Ghats of India. Though the country had a monopoly for pepper production earlier it now accounts for only 20% of the world output. Pepper is grown in an area of 1,10,640 hectares in the southern part of the country producing 27,410 tonnes annually. The world's first and only hybrid variety, 'Panniyur-1' was evolved at the Pepper Research Station, Panniyur in Kerala State. Pepper is a small farmer's crop and generally grown as a mixed crop in the homestead gardens. The commercial grade, Malabar Garbled Extra Bold, fetches the highest price in the international market.

Cardamom: Cardamom, the Queen of Spices, is the next most valuable spice. The crop is indigenous to South India. India is the largest producer with 4,400 tonnes. West Asian countries are the major markets for Indian Cardamom. "Alleppey Green" is the most sought after cardamom in the world.

Ginger, Turmeric, Chillies: India is the largest producer of ginger and turmeric in the world accounting for 60% and 90% the total output respectively. The annual production of ginger is around 80,000 tonnes and turmeric 1,99,000 tonnes. "Cochin ginger" and "Alleppey turmeric" get premium price in the international markets. India is also the world's largest producer of chillies (Capsicums). The varieties commercially grown are of medium pungency. Export of chilli is negligible and more than 95% of the production is consumed locally. There is vast scope for growing the mildest paprikas to the most pungent chillies.

37% Under Poverty Line

A total of 271 million people, constituting 37.4 per cent of the population, live below the poverty line, according to the 1984 estimate, Minister of State for Planning Sukh Ram told the Lok Sabha on November 11, 1987.

With 53.06 million, Uttar Pradesh tops in the number of people below the poverty line.

Those who have an income of Rs. 3500 per annum are considered below poverty line.

The Seventh Plan aims to bring down the percentage to 25.8 by 1990.

Meanwhile the number of income-tax payers in the country has gone up to 6.26 million in 1987 from 4.93 million in 1985 and 5.48 million in 1986, Minister of State for Finance B. K. Gadhvi informed the Rajya Sabha.

He said the Government was taking various steps to bring into the income-tax net more persons engaged in petty business but having substantial income.

THE PLANTATIONS

Plantation sector contributes substantially to the foreign exchange earnings of the country. The principal items of export are tea, coffee, tobacco, cashew and spices.

India continues to be the world's largest producer, consumer and exporter of black tea. Compared to 1985, 1986 has not been a very good year in terms of production. During January–December, 1986 production of tea is estimated to be of the order of 618 m kgs, as against 657 m kgs during the corresponding period in 1985.

India continues to be the only producer which manufactures both CTC and orthodox tea in substantial quantities. India's production of CTC is estimated to be of the order of 475 m kgs most of which is consumed at home. The estimated Indian productio[illegible]rthodox tea is

180 m kgs, most of which is exported.

About 98% of the Indian tea production comes from Assam, West Bengal, Kerala and Tamil Nadu. Area planted (1985): 3,99,929 ha.

Indian tea is exported to a avery large number of countries. In terms of volume and value the large buyers are USSR, UK, Arab Republic of Egypt, Iran and Iraq.

The table below gives figures of exports of tea from India for the last three years:

Total Tea

Year	Qty m kgs	Value Rs. in crores	U/Price Rs/kg
83-84	202.3	557.55	27.56
84-85	217.40	771.39	35.48
85-86	222.92	674.24	30.25
86-87	161.85	491.03	30.34

(April–December provisional)

The Tea Board has been set up under the Tea Act, 1953. The Board promotes the development of tea industry.

Coffee cultivation is mainly confined to the three southern states of Karnataka, Kerala and Tamil Nadu. The area has increased from 156,000 hectares in 1974-75 to 234,531 hectares in 1984-85. Non-traditional coffee growing states are Andhra Pradesh, Orissa and all the States on North Eastern region. About 97.8% of coffee holdings are of less than 10

Area planted (86-87): 2,40,596 ha.

India accounts for about 1.7% of the coffee produced in the world and about 1.25% of exports. Total production in 1986-87 is expected to be 160,000 tonnes. During 1986-87 about 56,000 tonnes is expected to be consumed domestically and exports may exceed the target level of Rs.300 crores in value. Instant coffee exports are of the order of about 800 tonnes.

The export of coffee during 1985-86 was 99,300 tonnes valued at Rs.274.98 crores as compared with 67,800 tonnes valued at Rs.204.97 crores during 1984-85. The provisional data for the first nine months of 1986-87 place exports at 67,700 thousand tonnes valued at Rs.293.66 crores.

The Coffee Board consists of a Chairman and 32 other members representing the different interests.

Year	Production (Qty. in tonnes)
1981-82	149,490
1982-83	129,514
1983-84	104,325
1984-85	196,213
1985-86	121,000 (P)
1986-87	160,000 (E)

P=Provisional
E=Estimated for the period of April–Dec. 1986.

Rubber is mainly grown in the southern states of Kerala, Tamil Nadu and Karnataka. The total area under rubber cultivation in India at the end of 1985-86 was 370000 (E) hectares. Rubber plantations are predominated by small holders numbering 300,000 and they share about 77% of total rubber area. The average yield per hectare of rubber plantation is currently around 860 kgs as against 771 kgs in 1979-80. Area planted (86-87): 3,84,000 ha.

The figures for production/consumption of natural rubber since 1981-82 are as under:

Year	Production (Tonnes)	Consumption (Tonnes)
81-82	152,870	188,420
82-83	165,850	195,545
83-84	175,280	209,480
84-85	187,000	220,000
85-86	200,465	235,440
86-87	220,000 (E)	255,000 (E)

(E) Estimated

Since 1978, India has become a net importer of rubber since consumption has been increasing rapidly. The value of imports is indicated below:

Year	Import (Tonnes)
1981-82	42,750
1982-83	31,659
1983-84	32,175
1984-85	32,408
1985-86	38,538
1986-87	40,000

(Imports are effected through State Trading Corporation of India Ltd.)

Small Cardamom (Eletteria Cardamom) occupies an important position among the foreign exchange earning commodities. Presently production of this commodity is mainly confined to the three States of Kerala, Karnataka and Tamil Nadu. It is estimated that an area of 100,000 hectares (as on 31, March 1985) is under cardamom cultivation in the country. The production during 1985-86 was 4700 tonnes.

The Cardamom Board constituted under the Cardamom Act, 1965 looks after the Cardamom Industry in all its sectors, viz, production, marketing, exports, research..... etc.

Year	Production (tonnes)	Export (Qty)	Export (Value)
81-82	4100	2325	30.20
82-83	2800	1021	16.23
83-84	1600	258	5.44
84-85	3900	2383	64.81
85-86	4700	3272	58.46
86-87	3750	898	12.04
		(Apr-Dec Estimated)	

The flue crued virginia **tobacco** which is the major export type of tobacco, constitutes 30-35 per cent of total tobacco production in the country. The main producing states are Andhra Pradesh, Karnataka and to a small extent, Maharashtra. During 1985-86 season, 51,802 growers have been registered for an area of 1,16,302 hectares to grow FCV tobacco. A quantity of 98.14 million kgs, the shortfall being primarily on account of incidence of wild fly and unfavourable weather condition during the crop growth period in Andhra Pradesh.

During the current season 11,734 growers have been registered covering an area of 16,518 hectares in Karnataka resulting in a production of 16.22 million kgs. In Andhra Pradesh 38,380 growers have been registered covering an area of 86,180 hectares and plantations are still under progress.

While India is the third largest producer of unmanufactured tobacco in the world, it ranks 5th as an exporter in the world market. Our exports of unmanufactured tobacco, however, have been declining over the years on account of stiff competition faced in the international market. It is estimated that exports of unmanufactured tobacco during 1985-86 was 64,430 MTs valued at Rs.139.98 crores and that of tobacco products was 10,508 MTs valued at Rs.21.30 crores. Exports during the current year are likely to exceed this performance.

The development of virginia tobacco is looked after by the Tobacco Board, established by an Act of Parliament 1975.

The exports of **cashew** kernels during the period April-Dec. 1986 were 31,900 MTs valued at Rs.247 crores as against 31,929 MTs valued at Rs.191.06 crores during the corresponding period in 1985. The unit value of exports has increased from approximately Rs.58,000 per MT during 1985 to Rs.77,000 per MT during the current year. The exports of cashew kernels showed improved performance in respect of Australia, FRG, Hong Kong, Japan, Netherlands, New Zealand, Singapore and UAE. The USA continued to remain our major market.

The export of **spices** excluding small cardamom during April–December 1986 was 55,604 MTs valued at Rs.162.17 crores as compared to exports of 37,884 MTs valued at Rs.99.21 crores for the corresponding period last year. While pepper was the main contributor, the export of chillies, ginger and curry powder declined both in terms of quantity and earnings. The Spices Export Promotion Council continued its activities in the field of export promotion, participation in exhibitions abroad, publicity and propaganda.

The Spices Board came into existence on 26th February 1986. The Cardamom Board and the Spices Export Promotion Council were submerged in the Board.

INDUSTRIAL GROWTH POOR

Industrial production recorded a growth rate of 7.7 per cent during the first 10 months of 1986-87, according to the industry ministry.

During 1985-86, however, the growth rate was 8.7 per cent. The last three years have witnessed an average annual industrial growth rate of over 8 per cent.

The six infrastructure industries, comprising electricity, coal, saleable steel, petroleum refinery products, crude petroleum ar

Indian Companies Slip

India's five public sector units have retained their places among the 500 largest industrial corporations ouside the US as compiled by the **Fortune** magazine of the US for 1986. However, each of them has slipped from the rank it had occupied in 1985.

Indian Oil has retained its first place among the five units, though among the 500, it is ranked 53 in 1986 in terms of sales at $8.07 billion against 51 in 1985, Indian Oil, chalked up a net income of $105.8 million (rank 148) and had assets $2.9 billion (rank 195).

Oil and Natural Gas Commission has been ranked at 160 among the 500 with sales of $3.45 billion in 1986 against 153 in 1985. Its net income has been at $1.06 billion (rank 9) and assets $8.13 billion (rank 64).

Steel Authority of India has gone down to 182 with sales of $2.94 billion in 1986 against 179 in 1985. SAIL has net income of $130 million (rank 117) and assets of $6.8 billion (rank 80).

Coal India has slipped from the rank of 242 in 1985 to 260 in 1986 with sales of $2.17 billion —a loss of $330 million (rank 491) and assets of $4.6 billion (rank 126).

Bharat Heavy Electricals, the last of the five Indian companies among the 500, has been ranked at 419 with sales of $1.29 billion in 1986 against 413 in 1985. BHEL had a net income of $69 million (rank 207) and assets of $2.24 billion (rank 261).

Thus, Coal India, is the only one of the Indian units among the 500 to have recorded losses in 1986 as well as in 1985 and among the loss-makers it occupies the tenth rank in 1986.

Thus, India has only five companies in the top 500 largest industrial corporations ouside the US, while Japan has as many as 152, followed by Britain with 72, West Germany with 53, France 41, Canada 31, Sweden 22, Switzerland 16, South Korea 11, Australia and Finland 10 each, Italy 9, South Africa and Spain seven each and Brazil 6. India and Belgium are on par with 5 each, followed by Norway, Taiwan, Turkey, Mexico and Denmark with 3 each, Austria, the Netherlands, Britain, Israel and Venezuela 2 each and Argentina, Chile, Columbia, Ireland, Luxembourg, Netherlands Antilles, New Zealand, Panama, Portugal and Zambia 1 each.

Fortune has also ranked the 100 largest banks outside the US and only one bank from India, *State Bank of India,* figures among them occupying the rank of 72 in terms of assets in 1986 against 65 in 1985. SBI has assets of $38.007 billion, deposits of $26.16 billion (rank 79) and net income of $33.7 million. SBI does not figure in either of the categories like "Return on stockholders' equity" or "Change in Profits: The Ten Biggest Increases or The Ten Biggest Decreases." However, in the category, "Assets per Employee," SBI figures in the sub-category, "The Five Lowest," and that, too, as the last among the five with assets of $135,730 per employee against the median of $3.36 million for the 100 banks.

It is interesting to compare *Indian Oil,* the country's largest corporation and ranked 53 among the 500 largest industrial corporations outside the US in terms of sales with the 50 largest industrial corporations in the world.

The last of the 50 world's largest corporations, Thyssen, the steel company from West Germany, had a sales of $13.8 billion in 1986 against Indian Oil's sales of $8.07 billion in 1986. The world's largest corporation is General Motors of the US with sales of $102.8 billion in 1986.

ment, according for a weight of 28.8 per cent in the general index, have recorded a growth of 7.5 per cent during 1986-87 as compared to the previous year.

The automobile industry showed a substantial growth during 1986-87. During February April 1986-87, while scooter production registered a growth of 34.6 per cent, that of motor cycles recorded a growth rate of 16.4 per cent. Production of cars and jeeps also witnessed a growth of 20.3 per cent and 9 per cent respectively.

The cement industry achieved the production target of 36.50 million tonnes.

The new investment proposals from MRTP companies for industries exempted from the provision of Section 22 A of the MRTP Act were 117, with investment of Rs. 4132 crores in 1986 as against 110 with an investment of Rs. 2889 crores during 1985.

The total number of registrations by the secretariat of industrial approvals went up from 1167 in 1985 to 2387 in 1986, showing an increase of about 104 per cent. During January-April 1987, the number of units registered was 706 as against 465 during January-April 1986.

About 131 units took advantage of the broad-banding scheme during 1986, compared with 52 industrial undertaking during 1985. As many as 133 re-endorsements were made during 1986 under the scheme of re-endorsement of capacity as against 86 in 1985.

The public sector enterprises earned a record post-tax profit of Rs. 2000 crores in 1986-87 against Rs. 1200 crores earned during 1985-86. The public sector enterprises under the control of the industry ministry also registered a growth of 20 per cent in terms of value of production during April-March 1986-87.

The small-scale sector also witnessed a higher growth performance during 1985-86. Production of small-scale units is estimated to have shown a growth of 13 per cent in real terms over 1984-85.

The level of employment in this sector also went up from 90 lakhs in 1984-85 to 96 lakhs in 1985-86, registering a growth of 6.7 per cent. During 1986-87, employment by the small-scale sector is expected to reach 100 lakhs.

The overall production of khadi and village industries for 1985-86 is estimated at Rs. 1124.04 crores compared to Rs. 964.68 crores during 1984-85, registering a growth of 16.5 per cent.

At the same time in all, 1,28,687 small-scale units with an outstanding bank credit totalling Rs. 1,184.22 crore have been identified as sick, Minister of State for Finance Janardhana Poojary told the Lok Sabha in August 1987.

There were 18,12,580 borrowing units in the small-scale industries sector enjoying a total bank credit amounting to Rs. 8,321.04 crore at the end of June 1986.

During 1986-87 Rs. 85.46 crore was disbursed to 2.67 lakh beneficiaries by banks in various States.

Third Giant

India is not doing so bad, after all, on the industrial scene. In a list prepared by "SOUTH" the Third World magazine, of the 600 largest companies in the Third World, India has the third position with 81 companies. South Korea and Brazil with 93 and 83 companies respectively come first and second. China has 11 companies, Pakistan 9 and Bangladesh 2.

The number of countries represented in the list is 48. The top ten countries and the number of companies in them are as under:

South Korea	93
Brazil	83
India	81
Mexico	34
Argentina	30
Malaysia	23
Saudi Arabia	20
Singapore	18
Taiwan	17
Hong Kong	17

In terms of turn over the top ten countries are:

Rank	Company	Country	Turn over (m US $)
1	Petroleos Mexicanos-Pemex	Mexico	20,873
2	CMC	China	20,853
3	Kuwait Petroleum Corpn.	Kuwait	14,900
4	Petroleos de Venezuela	Venezuela	12,723
5	Petramina	Indonesia	12,600
6	Nigerian National Petroleum Corp.	Nigeria	11,000
7	Sinochem	China	10,000
8	Petrobras	Brazil	9,693
9	Brega Oil Marketing	Libya	8,450
10	Indian Oil Corporation Ltd.	India	8,423

The 600th is Hannan Chemicals of South Korea (turn over US $122 million).

It is becoming increasinly clear that the growth target of 8.3 per cent set for the Seventh Plan will be missed for the third year in succession.

It is evident that all is not well with the Indian industries. While the performance of India's private industrial sector has been exemplary, the vast array of public sector enterprises have been grossing up losses of billions of rupees over the years. Of late, the ideological dogmatism seems to have given way to pragmatism. It is too early to judge the outcome.

In the first flush of independence, India opted for a mixed economy. The industrial policy announced on 6th April 1948 envisaged an economy where public and private enterprises cooperated. The public sector reserved to itself monopoly rights in certain departments of industry like arms, atomic power, railway, transport, etc. Other fields were left open for the private sector.

The Industries (Development and Regulation) Act, 1951 made it obligatory for all new and existing industries and any substantial expansion and manufacture of new products by existing concerns to be licensed under the Act.

Industries (Development and Regulation) Amendment Act, 1984. The industries Development and Regulation) Act, 1951 has been amended to confer specific powers on the Central Government to define "Small Scale Undertakings" and "Small Scale Ancillary Undertakings" and on the advice of a high level committee, to reserve specific items for exclusive production in such undertakings.

In 1956 when the Congress Party decided to establish a socialistic pattern of society in India, the 1948 resolution was revised and a new policy was announced on April 30, 1956. Under this policy, industries were divided into two groups – Schedule A and Schedule B. The industries in Schedule A would be entirely state-owned; those in Schedule B would progressively become state-owned. Non-scheduled industries were left to the Private Sector, but public enterprises were free to enter this sector, if and when the Government so chose.

In 1970 the whole gamut of industrial policy was overhauled. The licensing policy was drastically revised in July 1970. The object of the revision was to give effect to the recommendations of the Industrial Licensing Policy Inquiry Committee (The Dutt Committee) and the Monopolies Inquiry Commissiion. The new licensing policy sought "to assign definite roles and areas of operation to different categories of entrepreneurs."

Industrial production was divided into the *core sector* (basic and strategic industries), the *middle sector* and *delicensed sector.* The middle sector was divided into two categories, the *heavy investment sector* (with a capital of 5 crore or more) and the *light investment sector* (capital between one crore and 5 crore). All industries requiring less than one crore investment were classified as delicensed.

The revised policy also introduced the concept of a *joint sector* in industry in accordance with the recommendations of the Dutt Committee.

The Monopolies & Restrictive Trade Practices Act, 1969 was brought into force in June, 1970. The Act placed a number of restrictions on big units with a total capital of 20 crore or over, in regard to appointments of directors, expansion of business and amalgamations or mergers.

The Industrial Policy of the Janata government was to be based on the agricultural economy. "The prosperity and the distribution of income arising from a broad-based growth

Tata's Tops In Profits

The assets of the first 20 large industrial houses increased by 29.5 per cent in 1985, Minister of State for Industry M. Arunachalam informed the Lok Sabha on November 11, 1987.

This increase was due to expansion, diversification, establishment of new undertakings, modernisation and amalgamation.

The Birla group has the most assets, worth Rs. 4111.85 crore, followed by the Tata group with Rs. 3698.84 crore and Thapar with Rs. 1067.86 crore.

Among these houses, the Tatas topped in making profits achieving Rs. 251 crore before tax. They were followed by Birlas (Rs. 154 crores) and Reliance (Rs. 71.62 crores).

The Hundred Giants

In India there are 100 giant companies in the private sector doing more than 100-crores' business in an accounting year.

Their ranking according to the net-sales in 1985-86 is as follows:-

Name of the company	Net Sales (Rs. in crores)
1. Tata Iron & Steel	1147.66
2. Tata Engineering	868.07
3. Reliance Ind.	711.35
4. Hindustan Lever	613.50
5. Associated Cement Companies	550.88
6. Delhi Cloth Mills	528.91
7. Larsen & Toubro	433.22
8. Southern Petrochemicals	432.62
9. Mahindra & Mahindra	405.41
10. Grasim Ind.	401.61
11. IEL	383.60
12. Escorts	331.26
13. Brooke Bond	329.95
14. J.K. Synthetics	325.13
15. Gujarat State Fertilizers	316.65
16. Ashok Leyland	299.81
17. Calcutta Electric	295.78
18. Century Spg	293.05
19. Modi Rubber	280.68
20. Lipton India	277.93
21. Dunlop India	270.00
22. Hindustan Motors	262.12
23. Tata Power	259.57
24. ITC	245.44
25. Peico Electronics	240.05
26. Birla Jute	239.52
27. Ballarpur Ind.	234.43
28. Hindustan Aluminium	232.32
29. Gujarat Narmada Valley Fertilizer	230.37
30. Bajaj Auto	226.28
31. National Organic Chemical	219.40
32. Bombay Suburban	215.62
33. Union Carbide	198.83
34. Bata India	196.76
35. Indian Aluminium	190.86
36. Ambalal Sarabhai	189.37
37. Guest Keen Williams	187.75
38. Crompton Greaves	182.41
39. Britannia Ind.	182.40
40. Nirlon Synthetics	181.42
41. Orkay Silk Mills	180.11
42. Premier Automobile	175.84
43. Rallis India	175.26
44. Madura Coats	175.15
45. Tata Oil Mills	170.93
46. Ceat Tyres	160.82
47. MRF	160.79
48. J.K. Industries	157.20
49. Andhra Valley Power	156.29
50. Voltas	151.98
51. Ahmedabad Electricity	150.97
52. E.I.D. Parry	150.88
53. Mangalore Chemicals	149.90
54. Modi Ind.	148.74
55. Shaw Wallace	148.13
56. Coromandel Fertilizers	143.01
57. Mafatlal Fine	142.68
58. Kesoram Ind.	142.30
59. Glindia	142.02
60. Zuari Agro	141.44
61. Standard Mills	140.06
62. Hindustan Ciba-Geigy	139.85
63. Siemens India	137.94
64. Tata Tea	137.11
65. Food Specialities	136.62
66. Tata Chemicals	136.57
67. Indian Rayon	135.88
68. Orient Paper	134.72
69. Bombay Dyeing	133.97
70. Hoechst India	133.57
71. Kirloskar Cimmins	133.30
72. Motor Industries	133.07
73. Raymond Woollen	132.88
74. Metal Box	130.62
75. Shree Digvijay Cement	129.69
76. Scindia Steam	126.90
77. Greaves Cotton	126.24
78. Ferro Alloy Corporation	124.45
79. Zenith Steel Pipe	120.27
80. Mukand Iron & Steel	118.46
81. Best & Crompton	118.38
82. Good Year	117.25
83. Asian Paints	116.95
84. Khatau Makanji	114.42
85. Straw Products	112.22
86. Amrit Banaspati	110.98
87. Colgate Palmolive	110.69
88. Tube Investments	110.05
89. India Cement	109.09
90. Jiyajeerao Cotton	107.59
91. Binny	107.26
92. Bajaj Tempo	105.25
93. Tata Hydro Electric	105.09
94. Jagatjit Cotton	101 71
95. Indian Organics	101.37
96. KCP	100.37
97. Special Steel	100.21
98. Mafatlal Ind.	100 17
99. Indian Dyestuff	99.84
100. Indian Oxygen	98 55

of agriculture and related activities in the countryside have to provide the basic demand for a wide range of industries producing articles of consumption.

1984-85 saw a number of steps by Government to liberalize industrial policy and streamline investment procedures. Within the overall framework of the Industrial Policy Resolution of 1956, a growth-oriented approach continued to be the basic thrust of the industrial policy.

All these measures were turned towards the removal of constraints on production and enhancing the level of capacity utilization, as well as raising productivity and imparting maximum speed to the process of growth in the industrial economy.

Industries (Development and Regulation) Act, 1951 continues to provide the necessary regulatory framework to ensure healthy and accelerated growth of the various constituents of the industrial sector. With a view to removing certain doubts the power of the Central Government to reserve specific items for exclusive manufacture by small sc industries, the Act has been amended empower the Central Government to rese on the advice of an Advisory Committee, ite for small scale sector.

With a view to providing flexibility to manufacturers to adjust their product-r according to the market demand and wit view to encouraging larger volume of prod tion so as to secure the benefits of econom of scale, broad categorization of all types two-wheelers and four-wheeled vehicles well as paper and paper board has b brought about.

In order to ensure more expeditious posal of licensing applications from MI companies, it was decided to consider s applications simultaneously under the ind tries (Development and Regulation) Act the Monopolies and Restrictive Trade Practi Act. The objective stands further facilitated combining the Department of Company Aff with the Ministry of Industry.

Trade Gap Shrinks

With a significant spurt in exports that far outpaced the rate of growth in imports, India's foreign trade deficit declined by Rs. 438 crores to Rs. 7513 crores during 1986-87 from Rs. 7951 crores in 1985-86.

According to the provisional figures, the aggregate value of exports recorded an increase of 20.4 percent to Rs.12,550 crores during 1986-87. This surge in exports is in contrast to a decline of 7.8 per cent during 1985-86. The total value of imports during the year ending March 1987 was Rs. 20,063 crores as against Rs. 18,371 crores in the preceding years implying a growth rate of 9.2 percent.

In fact, during the first 10 months of the fiscal year 1986-87, while the exports performance was extremely encouraging, the rate of increase in imports amounted to just 1.5 per cent. However, during the remaining two months of the year, there was a noticeable spurt in imports, leading to a rise of 9.2 per cent in the overall value of imports during 1986-87.

In regard to the export growth during 1986-87, one point is worth noting. The 20.4 per cent increase in exports is in the context of an absolute decline in exports during 1985-86. If allowance is made for this, the export growth rate during the year ending March 1987 would be much less than 20.4 per cent. In fact, compared to the value of exports during 1984-85, exports during 1986-87 represent an increase of only 5.9 per cent.

India's foreign trade
(Rs. Crores)

	Exports	Imports	Trade deficit
1980-81	6711	12549	5823
1981-82	7806	13608	5802
1982-83	8803	14293	5490
1983-84	9771	15831	6060
1984-85	11855	17173	5318
1985-86‡ (P)	10420	18371	7951
1986-87 (P)	12550	20063	7513

‡ The revised figure of exports is Rs. 11012 crores and of imports Rs. 19766 crores during 1985-86.
(P) Provisional

DEFENCE

Since the days of border wars India has one all out to build up her armed forces. oday India is having one of the largest ilitary forces in the world with an army of early one million personnel.

The authority of the Supreme Commander f the Armed forces is vested in the President f India. Responsibility for national defence, owever, rests with the cabinet. All important ssues having a bearing on defence are deided by the Cabinet Committee on Political ffairs which is presided over by the Prime linister. The Defence Minister is responsible o the Parliament for all matters concerning he Defence Services.

The direct responsibility for operational and dministrative control of the Armed Forces is hat of the Ministry of Defence and the three rmed Forces Headquarters of Army, Navy and ir Force. The Ministry of Defence acts as the entral agency for controlling and coordinating the development of the three services, for onveying the policy decisions of the Government of India to the three Services Headquarers for implementation and for obtaining inancial sanction from parliament for defence xpenditure.

The Ministry of Defence is headed by the linister of Defence who is of Cabinet rank. He s assisted either by Ministers of State for Defence or Deputy Defence Ministers. The Chief financial authoroity is the financial dviser to the Ministry of Defence. The Defence Ministry comprises four departments: (i) Department of Defence. (ii) Department of Defence Production. (iii) Department of Defence Supplies. (iv) Department of Defence Science and Research.

The Ministry is directly responsible for the defence of India, provisioning and administering the Armed Forces, viz. Army, Navy and Air Force, procurement of arms, weapons, ammunitions, ships, aircraft, vehicles, equipment and items of logistic support required by the Armed forces, the location and creation of indigenous capacity for production of hitherto imported items, and promotion of research and development in the field of defence.

Control of civilian services attached to the Ministry, formation of cantonments and delineation of their areas and regulation of housing accommodation for defence services personnel are among the other responsibilities of the ministry.

The main auxiliaries are: (i) The Territorial Army; (ii) Coast Guards; (iii) Auxiliary Air Force; (iv) National Cadet Corps comprising wings of the Army, Navy and Air Force.

Considering the size of the country, its very long borders and coastline, and also the strategic position it occupies in South Asia and the Indian Ocean, India has to maintain comparatively large defence forces. Today India is reported to have the fourth largest Army in the world, the fifth largest air force and the seventh largest navy. India's defence outlay has steadily increased from Rs. 806 crore in 1964-65 to nearly 8 times that figure (Rs. 6800 crore) today.

The Armed Forces consists of the three main services, The Army, the Navy and the Air Force, each of which is headed by their respective *Chief of Staff* viz., the Chief of the

Cochin Yard to Build Aircraft Carrier

India's first indigenously—built aircraft carrier would be commissioned before the end of this century, the chief of naval staff, Admiral R. H. Tahiliani, announced on September 2, 1987.

He said preliminary work on the project had already commenced and the Cochin shipyard would soon be taking up the construction of the aircraft carrier.

Admiral Tahiliani said India had acquired the status of "blue water navy" and brushed aside reports that the Indian navy was not equal to that of Pakistan.

Referring to a report by a U.S. defence expert that India lacked two basic naval doctrines, he said "there is no question of our not having a doctrine wherein we cannot safeguard our maritime interests. No navy can develop without an underlying philosophy of how to safeguard maritime interests."

Army Staff, The Chief of Naval Staff and the Chief of Air Staff who are of the rank of General and equivalent. These three chiefs of staff constitute the chiefs of staff committee, the chairmanship of which rotates among the three service chiefs according to seniority. The Committee is assisted by sub-committees dealing with specific problems such as planning, training, communication, etc.

The Army Headquarters is located in New Delhi. The Chief of the Army Staff is assisted by the following principal staff officers: (i) Vice Chief of Army Staff; (ii) Deputy Chief of Army Staff; (iii) Adjutant General; (iv) Quartermaster General; (v) Master-General of Ordnance; (vi) Military Secretary; (vii) Engineer-in-Chief.

The Army is organized into the following Commands: (i) Western; (ii) Eastern; (iii) Northern; (iv) Southern; (v) Central.

Each Command is commanded by a General Officer Commanding in Chief of the rank of Lieutenant General. The Command is further divided into Areas, Independent sub-Areas and Sub-areas, commanded by a Major General and Brigadiers respectively.

The Army consists of a number of arms and services. These are: (i) The President's Body Guard; (ii) Armoured Corps; (iii) Regiment of Artillery; (iv) Corps of Engineers; (v) Corps of Signals; (vi) Military Nursing Service; (vii) Army Medical Corps; (viii) Corps of Electrical and Mechanical Engineers; (ix) Remount & Veterinary Corps; (x) Military Farm Services; (xi) Army Education Corps; (xii) Intelligence Corps; (xiii) Corps of Military Police; (xiv) Army Physical Training Corps; (xv) Pioneer Corps; (xvi) Army Postal Service Corps; (xvii) Defence Security Corps.

The Territorial Army is a voluntary part-time citizens' force consisting of persons who are not professional soldiers but civilians who are eager to play a role in the defence of the country. All Indian nationals between 18 and 35 years of age are eligible to join it. The T.A. comprises infantry, engineering and medical units.

National Cadet Corps. NCC is a youth organization, open to students of academic institutions. It aims at development of leadership qualities, character and spirit of sportsmanship, cooperation and service. It is a voluntary organization and neither officers nor cadets are under any obligation or compulsion to enter active military service.

NCC consists of 3 divisions, Senior, Junior and Girls with Army, Navy and Air Wings. The authorized strength of the senior division is 4 lakh, Junior Division 7 lakh and girls 62,000 among the three wings of the Armed Forces.

The Headquarters of *the Navy* is located in New Delhi. The Chief of Naval Staff is assisted by the following principal staff officers:

(i) Vice Chief of Naval Staff; (ii) Chief of Material; (iii) Deputy Chief of Naval Staff; (iv) Chief of Personnel; (v) Controller of Warship Production and Acquisition; (vi) Chief of Logistics.

The Navy has three Naval Commands commanded by Flag Officers Commanding-in-Chief of the rank of Vice Admiral. They are: (i) Western Naval Command at Bombay; (ii) Eastern Naval Command at Vishakhapatnam; (iii) Southern Naval Command at Cochin.

There are two fleets, the Western and the Eastern, commanded by Flag Officers Commanding, of the rank of Vice-Rear Admiral. There are also Flag Officers commanding Goa Area and Andaman & Nicobar Islands. In addition, there are Naval Officers-in-charge of Bombay, Madras and Calcutta.

The two fleets consist of the aircraft carriers INS Vikrant, and the newly acquired INS Viraat, a number of frigate squadrons comprising modern anti-aircraft, anti-submarine and general purpose ships, missile equipped frigates/destroyers, a squadron of anti-submarine patrol vessels, several mine sweeping squadrons, submarines, a submarine depot ship, a submarine rescue vessel, landing ships capable of carrying tanks and personnel, and several fast attack craft carrying surface-to-surface missiles. In addition there are survey ships, survey craft, fleet tankers and a number of auxiliary craft such as tugs and mooring vessels. The survey units of the Navy carry out surveys of India's coast and surrounding waters, approaches to harbours, etc.

A naval organization functions at Port Blair to ensure the security of the Bay Islands.

The Navy took over the responsibility of Maritime Reconnaissance from the IAF and has acquired suitable MR aircraft for the purpose.

The navy has a sizeable Air arm with various types of fixed wing aircraft and helicopters such as Super Constellation, IR-38, Alizes, Sea Harriers, Islanders, Sea Kings, Alsutter and KA-25. These are used in various roles such as maritime reconnaissance, anti-submarine

The Siachen Problem

Pakistan violated Indian borders twice—in March and in September 1987.

The first one in early 1987 was not very serious though both the countries deployed troops along the border. By an agreement dated March 2, 1987 both the countries agreed to pull out 70 per cent of the troops deployed close to the border from Rann of Kutch to Punjab (Pakistan). However, Punjab's (India) border with Pakistan was excluded from the purview of the agreement and Indian troops could continue in their positions to prevent movement of terrorists and anti-social elements.

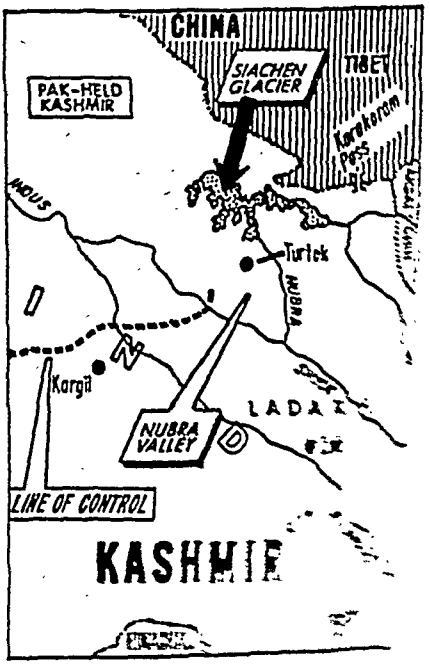
Earlier as per agreement dated Feb. 4, 1987 India and Pakistan had withdrawn about 1,50,000 troops from the Ravi-Chenab sector. Pakistan President Zia visited India to watch a cricket match between India and Pakistan. He also met Prime Minister Rajiv Gandhi.

However, in September 1987 Pakistan waged an attack on Indian posts in the Saltoro Ridge off Siachen area. Pakistani attacks were launched on three nights.

The attacks were preceded by very heavy concentrations of artillery fire. Rockets and missiles were also used by the Pakistani forces. Indian side suffered casualties. However, they were much lighter compared to the Pakistani losses.

The Pakistani troops made simultaneous attempts to take control of the Sia La, Indira Col, Bilafound and the Saltoro on September 23, 24 and 25.

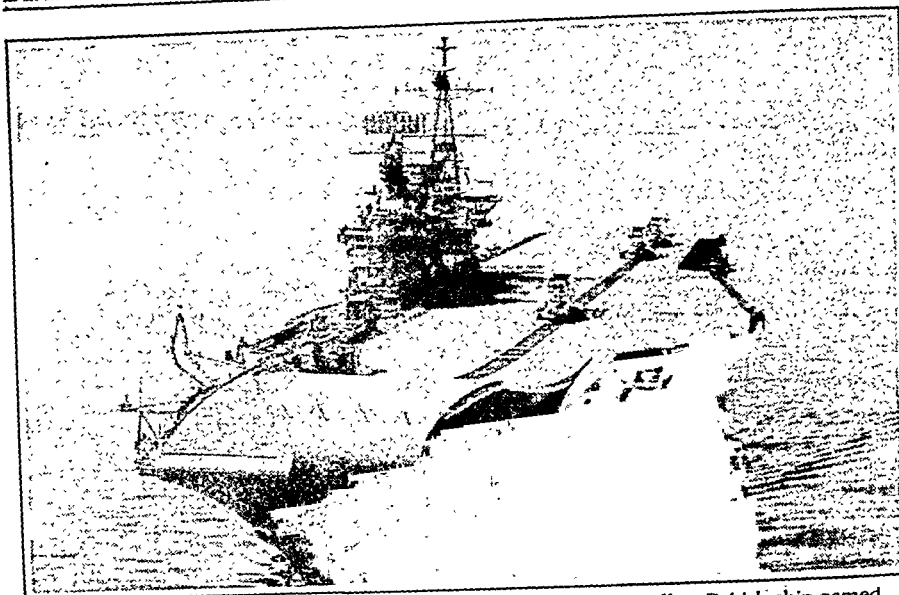
The four passes are the main access to the glacier which provides a backdoor entry into the Ladakh district. This is one



the most serious [illegible] across the line of [illegible] when Pakistan [illegible] to control the [illegible] between [illegible] in the region [illegible]

work, search and rescue, logistic [illegible] such as lifting troops and [illegible] terception, ground support [illegible]

Since 1964, India has developed [illegible] ably in building her own [illegible] number of ships, submarines [illegible] are under construction [illegible] such as Mazagaon Dock [illegible]



INS Viraat, the second aircraft carrier of the Indian Navy. Originally a British ship named Hermes, INS Viraat has a standard displacement of 29,800 tonnes and can carry 30 aircrafts at a time. INS Vikrant weighing 19,000 tonnes can carry 20 aircrafts at a time.

lian population, it was found necessary to provide for local self-government of those areas.

The Cantonment Boards formed under the Cantonments Act 1924, look after the municipal administration in their areas under the central government. These boards are responsible for providing civil services to the community and for looking after their welfare. There are 62 cantonments in India.

The defence production activities are broadly divided into two groups viz departmentally run Ordnance Factories and Defence Public Sector undertakings. Whereas the arms, ammunition, tanks, vehicles, etc are made in the Ordnance Factories, the Defence public sector undertakings are geared to produce ships, submarines, aircraft, earthmoving equipment, machine tools, missiles, sensors, communication equipment, etc. The Ordnance Factories and Defence PSU's have an ongoing programme of indigenisation.

Public Sector Undertakings: There are presently 9 PSUs under the administrative control of the Ministry of Defence (Department of Defence Production). Out of them eight PSI are in production making the aforementione equipment. They are:

(1) Hindustan Aeronautics Ltd. (HAL), (Bharat Electronics Ltd. (BEL), (3) Bharat Ear Movers Ltd. (BEML), (4) Mazagaon Docks L (MDL), (5) Garden Reach Ship-builders a Engineers Ltd. (GRSE), (6) Goa Shipyards L (7) Praga Tools Ltd. (PTL), (8) Bharat Dy mics Ltd. (BDL).

The ninth PSU, Mishra Dhatu Nigam L (MDNL or "Midhani") manufactures the sp cial alloys and metals required by aeronauti space and electronics industries.

The nine Defence PSUs have a total wo force of 97,522 out of which HAL has maximum (40,470) and MDNL has the le (1070).

Research & Development: The R&D activi are carried out in 35 main laborator establishments and a few field units locate different parts of the country. The organizat is headed by the Director General, Researc Development (DGR & D) who is also Secretary to the Govt. for Defence Resea He is assisted by three chief controllers

TRANSPORT: RAIL, ROAD & AIR

Indian Railway has grown into Asia's largest and the world's fourth largest railway system from a modest beginning in April 1853 when the first train steamed off from Bombay to Thana, stretch of 34 km. As on 31 March 1985, it has a route kilometrage of 61850. It is also the biggest public sector undertaking in the country.

Indian railways run about 11270 trains everyday connecting 7093 stations. During 1984-85, they carried 333.32 crore passengers and 26.45 crore tonnes of freight traffic. Indian railways operate on three gauges – broad gauge, metregauge and narrow gauge. The operation fleet consists of 10,128 locomotives, 38583 coaching vehicles and 3,65,390 wagons.

On 3 March 1985 it had total assets of Rs.10,377.3 crore and a staff strength of over 16.03 lakh regular employees.

Railway Progress Chart

	1950-51	1984-85
Route length		
Electrified (km)	388	6325
Non-electrified (km)	53208	55525
Total (km)	53596	61850
Passengers (lakh)	12840	33332
Goods (lakh tonne)	930	2648

Since the beginning of the five year plan in 1950-51, the number of diesel locomotives has gone up by more than 171 times, from 17 in 1951 to 2905 in 1984-85 and electric locomotives by more than 17 times i.e. from 72 to 1253.

Indian railways entered the *Metro Age* during 1984-85. A section between Esplanade and Bhavanipur in Calcutta covering a distance of 3.5 km connecting five stations was opened for commercial operation during this period. Another stretch of 2.2 km between Dum Dum and Belgachia was opened later on.

The responsibility for the administration and management of the railways vests in the Railway Board under the overall supervision of a Cabinet Minister assisted by a Minister of State. The Board consists of a Chairman, who is an ex-officio Principal Secretary to the Government in the Ministry of Railways, a Financial Commissioner and Four other members, who are all ex-officio Secretaries to Government.

The Railways are divided into nine zones, each headed by a General Manager.

Zonal Divisions

Railway	Headquarters	Route km
Central	Bombay V.T.	6472
Eastern	Calcutta	4270
Northern	New Delhi	10977
North-Eastern	Gorakhpur	5163
North-East Frontier	Maligaon (Guwahati)	3739
Southern	Madras	6722
South Central	Secunderabad	7137
South Eastern	Calcutta	7075
Western	Bombay–Churchgate	10295

Roads: Indian road net work is one of the largest in the world. The total road length in India as on 31 March 1983 is 15,54204 km. The outlay for road development under the Seventh Plan for central sector is Rs 1019 75 crore, for state sector Rs 3,666 98 crore and for Union Territories Rs 513 31 crore.

India has developed a *national highway* system. It has a total length of 31 98 km. An outlay of Rs 1,019 75 crore has been provided in the Seventh Plan for the development of national highways. Though the national highways constitute only two per cent of the total road length, they carry nearly one third of the road traffic.

State highways and district and rural roads are the responsibility of the state governments. Roads are being developed in rural areas under the minimum needs programme the objective being to link all villages with a population of 1,500 and above and 50 per cent of the villages with a population of 1,000–15,000 with all weather roads by 1990.

The *Border Roads Development Board* was setup in March 1960 for accelerating economic development and strengthening defence preparedness through rapid road communication. *Border Road Organization* (BRO) ex

India's Long Distance Trains

The Indian Railways run on an average about 900 Mail/Express trains connecting important cities, state capitals, pilgrim centres, etc. Their average speed is 47.1 km per hour (BG) and 32.8 km per hour (MG). Some of the trains cover distances of over 3,000 km in one scheduled trip. The important long distance trains between selected pairs of points are:

Number and Name of the Train		Pairs of Stations between which it runs	Distance (km)
901/902	Express	Guwahati-Trivandrum (Weekly)	3,974
125/126	Kerala Express	New Delhi-Tvm. (Daily)	3,054
911/912	Express	Gorakhpur-Cochin Harbour Terminus (Weekly)	2,991
903/904	Express	Ahmedabad-Tvm (Weekly)	2,720
127/128	Karnataka Express	New Delhi-Bangalore (Daily)	2,444
175/176	Neelachal Express	Puri-New Delhi (3 days a week)	2,136
81/82	Jayanti Janata Express	Bombay VT-Kanyakumari (Daily)	2,149
15/16	Grand Trunk Express	New Delhi-Madras (Daily)	2,188
121/122	Tamil Nadu Express	New Delhi-Madras (4 days a week)	2,188
171/172	Express	Jammu Tawi-Bombay Central (Bi-weekly)	1,973
59/60	Gitanjali Express	Bombay-Howrah (5 days a week)	1,968
173/174	Himgiri Express	Howra-Jammu Tawi (3 days a week)	1,967
155/156	Tinsukia Mail	New Delhi-Guwahati (Daily)	1,937
81/82 and 103/104	Deluxe Express	Amritsar-New Delhi-Howrah (5 days a week)	1,889
3/4	Frontier Mail	Amritsar-Bombay Central (Daily)	1,836
25/26	Deluxe Express	Amritsar-New Delhi-Bombay Central (Bi-weekly)	1,835
1/2	Kalka Mail	Kalka-Howrah (Daily)	1,709
123/124	Andhra Pradesh Express	New Delhi-Secunderabad (4 days a week)	1,665
141/142	Coromandal Express	Madras-Howrah (Daily)	1,663
145/146	Navajivan Express	Ahmedabad-Madras (2 days a week)	1,952
101/102	Rajdhani Express	Howrah-New Delhi (4 days a week)	1,437
151/152	Rajdhani Express	Bombay Central-New Delhi (5 days a week)	1,384
9/10	Mail	Bombay-Madras (Daily)	1,279
153/154	Jayanti Janata Express	New Delhi-Harsuni (Daily)	1,173
19/20	Konarak Express	Bhubaneswar-Secunderabad (Daily)	1,144
1/182	Sarvodaya Express	New Delhi-Ahmedabad (Bi-weekly)	1,092
191/192	Magadh Express	New Delhi-Patna (Daily)	992
167/168	Malwa Express	New Delhi-Bhopal-Indore (3 days a week)	969
505/506	Ashram Express (MG)	Delhi-Ahmedabad (4 days a week)	934
101/102	Minar Express	Secunderabad-Bombay (Daily)	900
15/16	Chetak Express	Delhi-Udaipur	739
57/58	Kanchanjunga Express	Howrah-New Jalpaiguri (6 days a week)	693
91/92	Prayag Raj Express	New Delhi-Allahabad (Daily)	627
509/510	Mandor Express (MG)	Jodhpur-Delhi (Tri-weekly)	626
119/120	Gomti Express	New Delhi-Lucknow (6 days a week)	503
135/136	Vaigai Express (MG)	Madras-Egmore Madurai (Daily)	402
507/508	Marwar Express (MG)	Ahmedabad-Jodhpur (Bi-weekly)	455
79/80	Taj Express	New Delhi-Gwalior via Agra (Daily except Wednesday)	317
501/502	Pink City Express	Delhi-Jaipur	308

ecutes its works departmentally. So far BRO has constructed about 18,900 km of roads and are maintaining about 17,500 km of roads.

Waterways: India has the largest merchant shipping fleet among the developing countries, and ranks 16th in the world in shipping tonnage. As compared to 1.92-lakh GRT (Gross Registered Tonnage) at the time of independence, the country's operative tonnage as on 30 June 1986 is 55.83 lakh GRT.

There are 55 shipping companies in the country of which 19 are engaged exclusively in coastal trade, 29 in overseas trade and the remaining of in both coastal and overseas trade. The only government shipping company viz *Shipping Corporation of India* carries on both.

The SCI which is one of the biggest shipping lines in the world, has a merchant fleet of 137 vessels of 31.32 lakh GRT as in June 1986. During 1984-85, the SCI's gross earnings amounted to Rs. 616.37 crore. The tonnage of SCI accounts for about 56 per cent of the total Indian tonnage.

The Mogul Line Ltd. under public sector shipping company was merged with the SCI on 30 June 1986.

The major private sector shipping companies which own one lakh or more GRT are the Scindia Steam Navigation Company Ltd. (4.03 lakh GRT), Great Eastern Shipping Company Ltd. (4.50 lalh GRT), India Steamship Company Ltd. (1.01 lakh GRT), South India Shipping Corporation Ltd. (2.74 lakh GRT), Ratnakar Shipping Company Ltd. (1.33 lakh GRT), Chowgule Steamship Ltd. (2.27 lakh GRT) and Damodar Bulk Carriers Ltd. (1.13 lakh GRT).

Indian Register of Shipping (IRS) has its head office in Bombay and out-post offices at Bombay, Calcutta, Vishakhapatnam, Madras, Cochin, Goa, Rourkela and Tiruchirapally.

There are four major and four medium size shipyards in India. There are another 32 small shipyards in the private sector which caters to domestic requirements for small crafts

Of the major ones Hindustan Shipyard Ltd., Vishakhapatnam and Cochin Shipyard Ltd. are under the control of the Ministry of Surface Transport. The other ones namely, Mazagon Dock Ltd., Bombay and Garden Reach Shipbuilders & Engineers, Calcutta are under the Department of Defence Production, Ministry of Defence.

The Hindustan Shipyard has built 89 ships since 1947. Its present annual production capacity is about 428 ships of 21,500 Dwt. *The Cochin Shipyard*, setup with Japanese collaboration, is designed to have a dock for building ships upto 85,000 Dwt and a repair dock to accommodate ships upto 1,00,000 Dwt. They have so far delivered three ships of 75,000 Dwt bulk carriers.

Inland Waterways: India has about 5,200 km.

IA—the Second Largest Carrier

Indian Airlines is the second largest domestic carrier in the world outside the United States.

According to the latest statistics issued by the International Air Transport Association (IATA) the airlines carried 8.56 lakhs passengers during 1985. The only other airlines outside the US which carried more passengers than IA is the Japan Airlines. In May 1986 on an average IA flew 28,636 passengers daily, the highest number so far.

Indian Airlines domestic network of 81,926 unduplicated route kilometres has also been adjudged as the second largest among the non-US IATA carriers. The Indian Airlines domestic revenue tonne kilometres (RTKMS) performed in 1985 with a growth rate of 10.2 per cent has also been adjudged as the third largest growth rate achieved among the top 10 IATA domestic airlines.

** ** **

The world's airlines will be carrying about two billion passengers a year by the turn of the century, and it will cost tens of billions of dollars to cope with the "significant pressures" that will result, Jane's Airport Equipment said in its sixth edition

Last year, the 1987-88 edition reported, airlines in the 157 member nations of the International Civil Aviation Organization carried a record 950 million passengers on scheduled flights, an increase of 6 per cent over 1985. It estimated that $90 billion would be spent between now and 2000 to cope with growing air traffic.

At least 4,000 aircraft, including 1,800 for replacement, will be needed by the 144 members of the international Air Transport Association (IATA) by the mid-1990s.

The association's director-general, Mr. Gunter O. Eser, disclosed this at the 42nd annual general meeting of the association held at Montreux in Switzerland.

of major rivers, which are navigable by mechanized craft, but only 1,700 km are actually utilized. As regards canals, the avalalble length is 4,300 km but only a length of 485 km is suitable for mechanized craft, of which only 331 km are being actually used.

Important among the navigable rivers are the Ganga, the Brahmaputra and their tributaries; the Godavari, the Krishna, the Mahanadi, the Narmada, the Tapti and their canals; the backwaters and canals of Kerala; the Buckingham canal in Andhra Pradesh and Tamil Nadu, the Cumbarjua canal and the Mandovi and the Zuari rivers in Goa and the network of tidal rivers in the Sunderbans.

The Inland Waterways Authority of India was established in 1985 for the development of a national inland waterways system.

There are 11 major ports in India. In addition 139 minor working ports (out of a total of 226 minor ones) are also scattered along the coastline of about 6,000 km. Major ports: West Coast—Kandla, Bombay, Mormugao, New Mangalore and Cochin. (A new major port at Nhava Sheva off Bombay is fast developing). East coast—Tuticorin, Madras, Vishakhapatnam, Pardip and Calcutta—Haldia.

Civil Aviation: As on 31 December 1985, there are 739 civil aircrafts in the country (including 110 gliders) with current certificate of registration, out of which 275 have current certificate of airworthiness. During 1985, Indian registered aircrafts carried 1.0824 crore passengers on their scheduled services.

Air India, the country's flag carrier made a net profit of Rs. 66.00 crore in 1985-86. Air India carried 173,349 passengers during this period. It has nine Boeing 747-200 aircraft, three Airbus A300-B4 and five airbus A310-300 in its fleet. During 1986 five Boeing 707 aircraft have been phased out.

Indian Airlines made a net profit of 63.22 crore in 1985-86. It carried 9.210 million passengers in 1985-86.

IA fleet of 50 aircrafts comprises 11 Airbus (includes one on lease), 27 Boeing-737 (includes 2 on lease), 7 HS-748 and 5 F27 (includes 2 leased to Coast Guards).

75 YEARS OF INDIAN CINEMA

The development of India's film industry is as old and as exciting as the history of the medium itself. The touring agents of the famous Lumiere Brothers of France (Auguste and Louis) demonstrated the new invention in Bombay on 7th July 1896 at Watson's Hotel in the Esplanade Mansion. It was barely six months after the "marvel of the century" took the Paris audiences by storm. The Indian preview show was a thundering success and it consisted of six little films—'Entry of the Cinematograph', 'Arrival of a train', 'The Sea bath', 'A demolition', 'Leaving the factory', 'Ladies and soldiers on wheels' Later Calcutta was introduced to moving pictures towards the end of 1896 and Madras the following year.

The first Indian to make a film was *Harischandra Sakharam Bhatvadekar* (known popularly as Save Dada) He made short films like 'the wresters', 'Man and Monkey' in 1899. Save Dada also covered the Delhi Durbar of 1903 celebrating the coronation of Edward VII. Hiralal Sen and F. B. Thanawalla were two other Indian pioneers engaged in the production of short films in Calcutta and Bomaby respectively in the middle of 1900. Hiralal filmed extracts from renowned plays like Alibaba, Buddha, Sitaram, Sarala etc.

Around 1902 Jamshedji Framjee Madan and Abdullaly Esoofally launched their career with bioscope shows in Calcutta and Bombay. They exhibited imported short films like 'The Queen's Funeral Procession', 'Assassination of President McKinley', 'The Noah's Ark' etc. With the rise of the exhibitor-magnates like Madan, short story films started trickling in from several foreign countries. These included 'Life of Christ', George Melies's 'Trip to Moon', 'Joan of Arc', Edwin Porter's 'Great train Robbery', 'Gulliver' etc.

All this inspired an amateur dramatic club led by *R. G. Torney* and *N. G. Chitre* to attempt a story film based on a popular Hindu drama. The result was *'Pundalik'* released on May 18, 1912 at the Coronation Cinema in Bomaby. The film centred round a famous saint of Maharashtra and shown in a double programme coupled with a foreign film 'A Dead Man's Child', became India's first story film.

The first fully indigenous silent feature film *'Raja Harischandra'* made by *Dhundiraj Govind Phalke* (Dada Saheb Phalke) was released

on May 3, 1913 at the same theatre. It had titles in Hindi and English and it ran for an unprecedented 23 days. 'Raja Harischandra' (3700 ft) was cent per cent Indian where as 'Pundalik' was half British in its make. Therefore Dada Saheb Phalke has been rightly acclaimed as the *'Father of Indian Cinema'*.

Phalke laid the foundation for the start of a regular feature film industry in the country. After the resounding success of 'Raja Harischandra', Phalke moved to Nasik, where he built a studio and produced 'Mohini Bhasmasur' and 'Satyavan Savitri'. In 1914, he visited London with his 3 films and they won all round praise from the British Press.

The outbreak of World War I plunged Phalke into extreme financial crisis. In 1917, he made a grand reappearance with the revised version of 'Raja Harischandra' and India's first big box office hit 'Lanka Dahan'. In the same year, Bengal saw the birth of its first feature *'Satyabadi Raja Harischandra'* made by J. F. Madan's Elphinstone Bioscope Company. It was followed by 'Vilwamangal' by jyothish Banerjee in 1919.

In Madras the first feature film of South India was made by *R. Nataraja Mudaliar in 1919*. The film *'Keechaka Vadhom'*, produced under the banner Indian Film Company was also a mythological story.

After stepping into 1920, the Indian Cinema gradually assumed the shape of a regular industry. This is most noticeable in the quantum of production. The industry also came within the purview of the law. The Indian Cinematograph Act had been passed in 1918, which provided for the licencing of cinema halls and censorship of Indian and imported films. The board of censors was set up province wise but they started functioning only from 1920.

The new decade saw the arrival of many new companies and film makers. In 1921, Dhiren Ganguly of Calcutta produced "England Returned", the first social satire film with a contemporary background. One of the most significant filmmakers of the decade was Baburao Painter who formed the Maharashtra Film Company at Kolhapur. Suchet Singh was another ambitious film maker. After foreign training he entered the film world by forming the Oriental Film Marketing Company and created a record by presenting an American actress, Dorothy Kingdom in his first film 'Sakuntala'. Among the new ones entering the fields in 1921-22 was Ardeshir Irani. His first film 'Veer Abhimanyu' was a spectacular in the Hollywood fashion. Another talent of great promise being nurtured in Painter's Maharashtra Company was V. Shantaram.

Two pillars of Indian cinema: Dada Saheb Phalke and Ardeshir Irani

In the 1925-26 period, there came a film, by which the Indian Cinema came to be widely known on an international level. It was the 'Light of Asia', made by Himansu Rai. Other significant silent films include Chandulal Shah's 'Gunasundari', 'Educated Wife', Franz Osten's 'Shiraz' and 'A Throw of Dice'.

The Advent of Sound: The most remarkable thing about the birth of the sound film in India is that it came with a bang and almost overnight displaced the silent movies. The first Indian talkie 'Alam Ara' produced by Ardeshir Irani's Imperial Film Company and directed by Ardeshir Irani was released on March 14

THE MARVEL OF THE CENTURY
THE WONDER OF THE WORLD.
LIVING PHOTOGRAPHIC PICTURES
IN
LIFE-SIZED REPRODUCTIONS
BY
Messrs. LUMIERE BROTHERS.
CINEMATOGRAPHE.
A FEW EXHIBITIONS WILL BE GIVEN
AT
WATSON'S HOTEL
TO-NIGHT (7th instant).
PROGRAMME will be as under:
1. Entry of Cinematographe.
2. Arrival of a Train.
3. The Sea Bath.
4. A Demolition.
5. Leaving the Factory.
6. Ladies and Soldiers on Wheels.
The Entertainment will take place at 6, 7, 9, and 10 p.m.
ADMISSION ONE RUPEE.

The Marvel of the Century: A news paper advertisement on July 7, 1897.

Cinema in Bombay. The talkie had brought revolutionary changes in the whole set up of the industry.

In 1932, two great institutions were born namely Prabhat Film Company in Kolhapur and New Theatres Limited set up in Calcutta by B. N. Sircar. With the consolidation of the talkies by 1933 the Indian Cinema especially Hindi films, turned to contemporary themes. Eminent writers like K. M. Munshi, Mama Varekar, Munshi Premchand, Sarat Chatterji provided stories for films. In 1935, the play back system was introduced.

The year 1931 marked the beginning of the Talkie era in South India also. The first talkie pictures in Telugu and Tamil i.e. 'Bhaktha Prahlad' and 'Kalidoss' were released in the same year.

The thirties is recognized as the decade of social protest in the history of Indian Cinema. A number of films making a strong plea against social injustice were also made in this period like V. Shantaram's 'Duniya na Mane' and 'Aadmi' and 'Padosi', P. C. Barua's "Devadas" and "Mukti", Debaki Bose's "Vidyapati" and "Seeta" Nitin Bose's "Badi Bahen", Franz Osten's 'Achuth Kanya', V. Damle and Fathelal's 'Sant Thukaram', Mehboob's "Wattan", "Ek hi Raasta" and "Aurat". For the first time,

[illegible] 1937 [illegible]. [illegible] A year [illegible] another film [illegible] was also [illegible] The [illegible] delayed the [illegible] by several [illegible]

The forties also witnessed the production of a few remarkable films such as [illegible] "Dr. Kotnis Ki Amar Kahani", "Kalpana" Uday Shanker "Chandra Lekha" by S. S. Vasan, Chetan Anand's "Neecha Nagar", Abbas' "Dharti Ke Lal", etc. In 1949, Sohrab Modi set a new standard in historical film with "Pukar". He later made historicals like "Sikandar" and "Prithvi Vallabh". Similarly Vijay Bhatt earned plaudits for his two mythologicals "Bharat Milap" and "Ram Rajya".

New horizons were opened up by the first International Film Festival of India held in early 1952 at Bombay. For the first time, the industry and the film goers saw what a vibrant cinema existed, outside Hollywood. Films like 'Bicycle Thieves', 'Yukiwarisoo' had a tremendous impact on Indian film makers.

The big turning point came in 1955 with the arrival of Satyajit Ray and his classic 'Pather Panchali' which opened up a new path leading the Indian film to the world film scene, in a glorious and long lasting way. International recognition came to it with the Cannes award for "the best human document" followed by an unprecedented crop of foreign and national awards.

In Hindi cinema also the impact of neorealism was evident in some distinguished films like Bimal Roy's 'Do Bigha Zamin', Mehboob's 'Aan' and 'Mother India', K. A. Abbas's 'Munna' and 'Rahi', Raj Kapoor's 'Awaara', 'Boot Polish' and 'Jagte Raho', V. Shantaram's 'Do Ankhen Barah Haath', Guru Dutt's 'Pyaasa' etc. Apart from the production of these significant films, the fifties opened a vast world market for Indian films.

It must be also remembered that it was in the fifties that such films as 'Baiju Bawra', 'Naya Daur', 'Devdas', 'Shree 420', 'Jhanak Jhanak Payal Baje'; 'Sujata'; 'Madhumati', 'Anari', 'K[illegible] noon' 'Kagaz ke Phool', etc. were made. The first Indo-Soviet co-production "Pardesi" was also made by Abbas during the fifties.

Looking back one feels that the fifties was the most propitious decade in the history of Indian Cinema, especially Hindi cinema. In the sixties, with the untimely death of Mehboob, Bimal Roy and Guru Dutt, the Hindi

Play Back Singing: Fifty Glorious Years

The audio-visual impact of films, starting with the first Indian 'talkie' film 'Alam Ara' in 1931, gained fantastic new heights with the introduction of 'playback' singing, conclusively evident in 1936, when Saraswathi Devi, the music director of 'Achhut Kanya' recorded a song in her own voice 'Kit Gae Ho Khewanhar' which was pictu-rised on the actress Chandraprabha. That was 51 eventful years ago.

Since then many million feet of sound negative has been exposed to many thousands of hours of playback singing in Indian films. In the romantic saga of Indian film music—Hindi films in particular—one recalls with awe and reverence the unparalleled sway held by New Theatres in Calcutta and such maestros as K. L. Saigal, Pankaj Mullick, K. C. Dey and Kanan Devi and such music directors as R. C. Boral, Kamal Das Gupta and their likes who were darlings of a growing national audience.

Away in the far west, Lahore, the other active centre of film making was discovering the genius of music directors Ghulam Haidar, Pandit Amarnath, Pandit Gobindram and others and singing sensations Shamshad Begum, Ummeda Begum, Zeenat Begum, S. D. Batish, Amar and many others.

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To an already impressive opulence in the field of playback singing in films, the industry in Poona, particularly Prabhat Studios added liberally to the brilliance of such composers as Master Krishna Rao, Keshav Rao Bhole and Govind Rao Tembe and such voices as those of Kashmiri(?), Zohra Bai, Amirbai Karnataki, Noor Mohammed, G M

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In the fifties and sixties there was a dazzling galaxy of playback artistes like Kishore Kumar, Manna Dey, Mohammed Rafi, Talat Mahmood, Mukesh, Geeta Dutt, Lata Mangeshkar, Asha Bhosle and [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] millions of [illegible] [illegible] [illegible]. There were also [illegible] [illegible] as [illegible] [illegible]

Naushad, Anil Biswas, C Ramachandra, S D Burman, Madan Mohan, Shankar Jaikishan, O P Nayyar, Vasant Desai, Roshan, Salil Chowdhury, Jaidev and [illegible] [illegible] and in later years Kalyanji Anandji, Laxmikant Pyarelal, R D Burman, Usha Khanna, [illegible] [illegible] and others in the field of composing music.

In the south also playback singing developed in an astonishing manner. Foremost singers from the South Indian screen include M K Thyagaraja Bhagavathar, [illegible] [illegible], [illegible] [illegible], Ghantasala, P B Srinivas, A M Raja, P Leela, S Janaki, Jayachandran, S P Balasubrahmanyam, Vani

Music [illegible] Kishore Kumar, [illegible] [illegible] and Manna Dey [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] by Manna Dey in [illegible]

Jayaram, [illegible].

The [illegible] of [illegible] in the [illegible] of [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] of playback singing [illegible] [illegible] [illegible].

THE MARVEL OF THE CENTURY.
THE WONDER OF THE WORLD.
LIVING PHOTOGRAPHIC PICTURES
IN
LIFE-SIZED REPRODUCTIONS
BY
Messrs. LUMIERE BROTHERS.
CINEMATOGRAPHE.
A FEW EXHIBITIONS WILL BE GIVEN
AT
WATSON'S HOTEL
TO-NIGHT (7TH instant).
PROGRAMME will be as under:
1. Entry of Cinematographe.
2. Arrival of a Train.
3. The Sea Bath.
4. A Demolition
5. Leaving the Factory.
6. Ladies and Soldiers on Wheels.
The Entertainment will take place at 6, 7, 8, and 10 p.m.
ADMISSION ONE RUPEE.

The Marvel of the Century: A news paper advertisement on July 7, 1897.

Cinema in Bombay. The talkie had brought revolutionary changes in the whole set up of the industry.

In 1932, two great institutions were born namely Prabhat Film Company in Kolhapur and New Theatres Limited set up in Calcutta by B. N. Sircar. With the consolidation of the talkies by 1933 the Indian Cinema especially Hindi films, turned to contemporary themes. Eminent writers like K. M. Munshi, Mama Varekar, Munshi Premchand, Sarat Chatterji provided stories for films. In 1935, the play back system was introduced.

The year 1931 marked the beginning of the Talkie era in South India also. The first talkie pictures in Telugu and Tamil i.e. 'Bhaktha Prahlad' and 'Kalidoss' were released in the same year.

The thirties is recognized as the decade of social protest in the history of Indian Cinema. A number of films making a strong plea against social injustice were also made in this period like V. Shantaram's 'Duniya na Mane' and 'Aadmi' and 'Padosi', P. C. Barua's "Devadas" and "Mukti", Debaki Bose's "Vidyapati" and "Seeta" Nitin Bose's "Badi Bahen", Franz Osten's 'Achuth Kanya', V. Damle and Fathelal's 'Sant Thukaram', Mehboob's "Wattan", "Ek hi Raasta" and "Aurat". For the first time, Producer Ardeshir Irani attempted a colour picture in 1937 with 'Kisan Kanya'. A year later another film 'Mother India' was also made. The world war which broke out in 1939 delayed the advent of colour by several years.

The forties also witnessed the production of a few remarkable films such as Shantaram's "Dr. Kotnis Ki Amar Kahani", "Kalpana" by Uday Shanker, 'Chandra Lekha' by S. S. Vasan, Chetan Anand's "Neecha Nagar", Abbas's "Dharti Ke Lal", etc. In 1949, Sohrab Modi set a new standard in historical film with "Pukar". He later made historicals like 'Sikandar' and 'Prithvi Vallabh'. Similarly Vijay Bhatt earned plaudits for his two mythologicals "Bharat Milap" and "Ram Rajya".

New horizons were opened up by the first International Film Festival of India held in early 1952 at Bombay. For the first time, the industry and the film goers saw what a vibrant cinema existed, outside Hollywood. Films like 'Bicycle Thieves', 'Yukiwarisoo' had a tremendous impact on Indian film makers.

The big turning point came in 1953 with the arrival of Satyajit Ray and his classic 'Pather Panchali' which opened up a new path leading the Indian film to the world film scene, in a glorious and long lasting way. International recognition came to it with the Cannes award for "the best human document" followed by an unprecedented crop of foreign and national awards.

In Hindi cinema also the impact of neorealism was evident in some distinguished films like Bimal Roy's 'Do Bigha Zamin', Mehboob's 'Aan' and 'Mother India', K. A. Abbas's 'Munna' and 'Rahi', Raj Kapoor's 'Awaara', 'Boot Polish' and 'Jagte Raho', V. Shantaram's 'Do Ankhen Barah Haath', Guru Dutt's 'Pyaasa' etc. Apart from the production of these significant films, the fifties opened a vast world market for Indian films.

It must be also remembered that it was in the fifties that such films as 'Baiju Bawra', 'Naya Daur', 'Devdas', 'Shree 420', 'Jhanak Jhanak Payal Baje', 'Sujata', 'Madhumati', 'Anari', 'Kanoon' 'Kagaz ke Phool', etc. were made. The first Indo-Soviet co-production "Paradesi" was also made by Abbas during the fifties.

Looking back one feels that the fifties was the most propitious decade in the history of Indian Cinema, especially Hindi cinema. In the sixties, with the untimely death of Mehboob, Bimal Roy and Guru Dutt, the Hindi cinema

Play Back Singing: Fifty Glorious Years

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The scene in Bombay then, was also acquiring shades of brilliance where Bombay Talkies were making their own star singers like Ashok Kumar, Devika Rani, Leela Chitnis, Snehprabha Pradhan and a few others were carrying audiences with their music. The variety of music produced in Bombay, however was much greater due to the cosmopolitan lot of music directors—thereby accelerating the progress of what came to be known as 'filmigeet'—employing the use of a large ensemble of Indian and Western instruments, synthesis of all forms of Indian music, creation of new metres and thus new patterns in rhythm.

To an already impressive opulence in the field of playback singing in films, the industry in Poona, particularly Prabhat Studios added liberally to the brilliance of such composers as Master Krishna Rao, Kesav Rao Bhole and Govind Rao Tembe and such voices as those of Rajkumari, Zohra Bai, Ameerbai Karnataki, Khan Mastana, G. M. Durrani, Hamida Bano, Naseem Akhtar and others.

In the fifties and sixties there was a dazzling group of playback artistes like Hemant Kumar, Manna Dey, Mohammed Rafi, Talat Mahmood, Mukesh, Geeta Roy, Lata Mangeshkar, Kishore Kumar and Asha Bhosle. Each of them was a colossus with his or her own exclusive claim to immortality in the minds of millions of enthralled listeners in India and abroad. There were also such giants as Khemchand Prakash, Naushad, Anil Biswas, C. Ramachandra, S. D. Burman, Madan Mohan, Shanker Jai Kishan, O. P. Nayyar, Vasant Desai, Roshan, Salil Chowdhary, Jaidev and their likes and in later years Kalyanji Anandji, Laxmikant Pyarelal, R. D. Burman, Usha Khanna, Ravindra Jain and others in the field of composing music.

In the south also playback singing developed in an astonishing manner. Eminent singers from the south Indian screen include M. K. Thyagaraja Bhagavathar, Soundara Rajan, Seerkazhi Govindarajan, Ghantasala, P. B. Sreenivas, A. M. Raja, K. J. Yesudas, P. Susila, S. Janaki, Jayachandran, S. P. Balasubramoniam, Vani Jayaram, Madhuri, Chitra and their likes. Among the leading south Indian composers K. V. Mahadevan, M. S. Viswanathan, Ilayaraja, G. Devarajan, V. Dakshina Moorthy, M. B. Sreenivasan, Shyam and Shanker Ganesh are more popular in the industry.

The influx of youth in all spheres of films is an on going process. The late seventies and eighties have seen the arrival of many new talents in the field of playback singing and music composing.

Music trios: Kishore Kumar, Mohamad Rafi and Manna Day. The Rs. one lakh Lata Mangeshkar Award was won by Manna Day in 1987.

suffered a set back. The transition to colour and the consequent preference for escapist entertainment and greater reliance on stars brought about a complete change in the film industry.

Yet it must be admitted that the sixties began with a bang with the release of K. Asif's 'Mughal-E-Azam' which set a new record at the box office. It was followed by Rajkapoor's 'Jis Desh Mein Ganga Behti Hai', and Dilip

Government Support to Cinema

The Film Institute of India *was established in 1960 at Pune, by the Government of India, with the object of imparting technical training in a systematic manner in the art and craft of film making. In 1971 it was renamed the* Film and Television Institute of India *with extension of its sphere of activities to provide training in Television. On October 1, 1974 the Institute became a society registered under the Registration of Societies Act of 1860.*

The Film Wing offers courses leading to Diploma in Cinema with specialization in areas like direction, cinematography, editing, sound recording and sound engineering. Noted Malayalam film maker Adoor Gopalakrishnan is the present President/ Chairman of the FTII Society/Governing Council.

National Film Archive of India: *National Film Archive of India (NFAI) with headquarters at Pune is a pioneer institution set up in 1964 with the objectives of acquisition and preservation of National Cinema, film classification, documentation and reserach encouraging film technology and spread of film culture in the country. The Archive has a collection of more than 6500 films from all over the world and it is constantly growing. The Archive also maintains a library consisting of film books, periodicals and other materials related to film. NFAI has started regional offices at Calcutta, Bangalore and Trivandrum which provide useful service to film societies and film study groups in the respective regions. Shri P. K. Nair is the Director of the National Film Archive of India. The NFAI and the FTII jointly conduct Film Appreciation courses for teachers, journalists, media officers and film society workers since 1975.*

National Film Development Corporation: *The Government of India set up the Film Finance Corporation (FFC) in 1960 to promote the production of good cinema. In 1975 FFC was merged with the Indian Motion Picture Export Corporation (IMPEC) and is now known as National Film Development Corporation (NFDC). The FFC and NFDC have financed nearly 150 feature films so far. NFDC also plays an important role in the import of foreign films and in the export of Indian films. It has also started its own distribution network of imported commercial films. There is again a scheme for financing the construction of theatres by private entrepreneurs. Noted film director Shri Hrishikesh Mukherji is the present chairman of the National Film Development Corporation.*

Directorate of Film Festivals: *The Government of India provides sufficient funds to the Directorate of Film Festivals to organize International Film Festivals in India every year. It also arranges for the selection and entry of Indian films to film festivals held in other countries. The Directorate organizes the National Film Awards annually.*

Children's Film Society: *The Society was formed in 1955. It produces feature films and short films for children. It organizes subsidized shows and distributes film prints. The Society also organizes an International children's film festival held every other year in India.*

Films Division: *Indian Films Division is perhaps the world's largest single producer and distributor of news reels and documentaries. It is functioning under the Ministry of Information and Broadcasting. The Films Division was first set up in 1948.*

Kumar's 'Gunga Jamuna'. B. R. Chopra's 'Waqt', Raj Kapoor's 'Sangam', Dev Anand's 'Guide', Chetan Anand's 'Haqueequat', Pramod Chakravarthy's 'Love in Tokyo', Devendra Goel's 'Ek Phool Do Mali', Ramanand Sagar's 'Arzoo' and 'Ankhen' Sakthi Samantha's 'Aradhana', Raj Khosla's 'Do Raaste', Guru Dutt's 'Sahib Bibi aur Gulam', Manoj Kumar's 'Upkar', O. P. Ralhan's 'Phool aur Pathar' were other significant hits of the decade.

The seventies has further widened the gap between multistar big-budgeted commercial block busters and small-budgeted off beat films. The popular Hindi hits of the decade include 'Johny Mera Naam', 'Haathi Mere Saathi', 'Mera Gaon Mera Desh', 'Pakeeza', 'Bobby', 'Abhiman', 'Jugnu', 'Zanjeer', 'Victoria 203', 'Seeta aur Geeta', 'Sholay', 'Muquaddar Ka Sikandar', 'Deewar', 'Khoon Pasina', Mr. Natwarlal, 'Hera Pheri','Yadon Ki Baarat', 'Hum Kisise Kum Nahin', 'Kabhie Kabhie', 'Shor', 'Roti Kapada aur Makan', 'Dharam Veer', 'Amar Akbar Antony'. Of these, majority of the films were action oriented with revenge as the dominating theme.

New Cinema and Regional Cinema: The emergence of the 'New Indian Cinema' in the late sixties as a recognizable movement was partly a reaction to the popular cinema's "other worldliness". It is a cinema of social significance and artistic sincerity, presenting a modern, humanist perspective more durable than the fantasy world of the popular cinema. The new cinema is "regional" in the sense that it speaks in terms of recognizable situation, gives its characters a social identity and deals with situations close to life. In production too, it follows a pattern different from the popular cinema.

Satyajit Ray, Mrinal Sen and Ritwik Ghatak were the founding fathers of the New Cinema in India. Ray had a special vision of the Indian reality—hard, implacable, piercing to the heart of the matter in an unbearably truthful yet moving fashion. He has hitherto made 25 full length feature films and a few documentaries. The awards won by Ray's films are too numerous. Pather Panchali, Aparajito, Apur Sansar, Charulata, Devi, Goopy Gyne Bagha Byne, Seemabadha, Ashani Sanket, Jana Aranya etc. are some of his outstanding films.

Mrinal Sen is the ebullient one—experimenting with neorealism as well as new wave and fantasy. His notable films are Bhuvan Shome, Chorus, Mrigaya, Ek Din Pratidin, Akaler Sandhane and Genesis. Like Ray, Mrinal Sen also has won several awards both national and international. Ritwik Ghatak in a sense is

Satyajit Ray and Sharmila Tagore on the set of *Aranyer Din Ratri.*

Hollywood is 100

Hollywood threw a bash for its 100th birthday with a shower of champagne, 1.5 metre—high birthday cake and the unveiling of a plexiglass time capsule that celebrities filled on 1 February, 1987 with film land memorabilia.

A special star honouring the late Natalie Wood was implanted in the Hollywood walk of fame just outside the recently renovated Roosevelt Hotel, scene of the first academy award ceremonies in 1927.

About 500 fans blocked Hollywood boulevard to get a glimpse of Wood's widower, Robert Wagner, and their daughters, Kate, Courtney and Natasha.

At the birthday party inside the hotel a few minutes later, Mr. Wagner placed a replica of the sidewalk star inside the time capsule, which will remain above ground and be displayed at a location not yet disclosed.

Cowboy star Gene Autry put a piece of the old "Hollywood" sign into the time capsule, and actor James Stewart added a letter from President Reagan.

Actor Buddy Rogers, widower of Mary Pickford, donated a cassette of the film "Wings", which won the first Oscar 60 years ago and starred Pickford.

Rogers recalled attending the Oscar ceremonies in the very same room, with Clara Bow and Gary Cooper sitting nearby. Bob Hope placed an Oscar into the capsule. The party began a year-long celebration of Hollywood's centennial.

The film capital traces its history to the purchase of a 120-acre ranch by a Kansas prohibitionist named Harvey Wilcox, whose wife decided to name the property after the summer home of a Chicago acquaintance.

On Feb. 1, 1887, Wilcox registered the name "Hollywood" with the Los Angeles city recorder.

the most disturbing figure. His films constitute a record of the traumas of change—from the desperation of the rootless and deprived refugees from East Bengal. (Meghe Dhaka Tara, Komal Gandhar, Subarnarekha).

A whole new group of film makers emerged on the Bengal scene. Notable among them were Tapan Sinha, Tarum Majumdar, Purnendu Pattrea & Buddhadeb Dasgupta. They continued the breakaway tradition of Ray and made some significant contributions in their own individual styles.

In Bombay, from the 'new cinema' group there came Basu Chatterji's "Sara Akash", Rajinder Singh Bedi's "Dastak", Mani Kaul's "Uski Roti", "Ashad ka Ek Din" and "Duvidha", Kumar Shahani's "Maya Darpan", Awtar Kaul's "27 Down", Basu Bhattacharya's "Anubhav" and "Aavishkar", M. S. Sathyu's "Garam Hawa" etc. Shyam Benegal's advent with "Ankur" has been a significant event of seventies. He has since made notable films like "Manthan", "Nishant", "Bhumika", "Junoon", "Kalyug", "Trikal" etc.

The south gained its first recognition as a centre for serious cinema with the Malayalam 'Chemmeen' (1965) by the late Ramu Kariat. In the seventies the film makers of Karnataka an Kerala raised the banner of the New Cinema i the South, so distinctively that the New Cinem became identified with regional cinema. Pa tabhi Rama Reddy's 'Samskara' (1970) an Adoor Gopalakrishnan's 'Swayamvaran (1972) were the trend setters in Kannada an Malayalam respectively. This trend continue with a series of socially conscious and releva films—outstanding among them being. M. Vasudevan Nair's "Nirmalyam" (1973), B. Karanth's 'Chomana Dudi', G. Aravindan 'Utharayanam' and 'Thamp', Girish Karnad 'Kaadu", Girish Kasaravalli's 'Ghattasradh Adoor Gopalakrishnan's 'Kodiyettam', P. Backer's "Chuvanna Vithukal" and K. George's 'Swapnadanam'.

The artistic—supremacy of the region cinema reached its peak in the seventies wi the arrival of bright young talents from th film schools at Pune and Madras who took u cinema as a challenging medium and made positive contribution—along with the suppo of an intelligent minority audience thrown u by the active film society movement in th south.

The active good cinema movement in Ka

Indian Cinema: Fantasy Factory

The seats in the Shiela Theater in New Delhi are filled, all eyes riveted on the wide screen as the movie "Deewar" begins. A mob of swarthy gangsters has just arrived on the docks, brandishing knives and bicyle chains, demanding a fistful of every stevedore's meager wages. But the hoods are no match for Vijay, the film's lead character, played by the reigning macho man of Indian cinema, Amitabh Bachchan. When he is attacked by the young toughs, the quiet dockworker is transformed into a furious fighting machine of wicked left hooks and devastating roundhouse kicks. By the scene's end, Vijay has the gangsters fleeing for their lives — and the audience on its feet, screaming for their hero.

The crowds flock to India's theaters, 75 million a day, lured by the images of the largest dream factory in the world. India churns out nearly 1,000 films every year, most of them a bountiful if unwieldy mix of song and dance, brawls and chases, domestic melodrama and chaste romance. For India's largely poor moviegoers, the cinema offers more than just escape from the drudgery of their lives; films like "Deewar" offer the comforting illusion of instant justice. For both those reasons, the cinema is a national obsession. It has spawned scores of movie magazines and fan clubs. Government officials are eager to bobnob with film stars; thanks to an adoring public, a handful of stars have become prominent politicians. Nowwhere, infact, do moviegoers identify as closely with the tales of the cinema as in India.

The country's film industry serves up more to the public than just myth and fantasy. In recent years the local movie capitals in Bombay, Madras and Calcutta have begun producing new-wave movies that explore contemporary social and political issues. Films like "Half Truth" and "Seedling" have dealt with such themes as police brutality and the degradation of India's indentured labourers. Such films have been box-office successes, thanks in part to the fact that they feature some of India's hottest stars in leading roles. Actress Hema Malini, who has been dubbed "the Marilyn Monroe of India" for her sultry looks and sometimes steamy film roles, has starred in several movies about the travails of women in traditional Hindu society, including the hardships of India's archaic dowry system.

blocktbuster epics, and their charismatic superstars that seem to have thoroughly mesmerized the country's moviegoers — and their adulation often extends far beyond the realm of filmdom. Several matinee idols, including N.T. Rama Rao, who is now chief minister of Andhra Pradesh and M. G. Ramachandran, chief minister of Tamil Nadu, have been catapulted into politics by loyal fans. No one has achieved more prominence than Amitabh Bachchan. He has starred in 80 films over the past decade, playing everything from Clint Eastwood-style heroes to brooding, sensitive characters reminiscent of Marlon Brando. His screen persona was apparently so convincing that residents in his home town of Allahabad, in northern Uttar Pradesh, elected him in a landslide victory to a parliamentary seat in 1984.

But his dubious career in government has sputtered to an ignominious end. Amid allegations that he violated foreign currency laws by secretly stashing millions of dollars in Swiss banks, Bachchan resigned from Parliament. Even that scandal seems unlikely to crimp his career on celluloid. Bachchan is already back at work on three of his unfinished films, and now has contracts for another 15 movies. When they are released in India's theaters, his fans are sure to be screaming as loud as ever. (News Week)

nataka has suffered a severe set back of late, with a number of completed off beat films remaining in the cans and awaiting distributors and exhibitors. The Hindi Avante garde or new wave seems to have reached its bloom period towards the end of the seventies with the coming of film makers like Govind Nihlani (Aakrosh), Saeed Mirza (Albert Pinto ko Gussa Kyon Aatha Hai), Sai Paranjpe (Sparsh), Rabindra Dharmaraj (Chakra), Musaffar Ali (Gaman) and Biplab Roy Chowdhary (Shodh). The movement spread to the other regional cinema such as Marathi, Gujarathi & Telugu also. Directors like Jabbar Patel, Ramdas Phuttane, Ketan Mehta and Gautam Ghose came to the scene with their films.

Far in the south also film makers such as K. Balachander, John Abraham, Bharathi Raja, Bharathan, Padmarajan, K. R. Mohanan and a few others presented some significant films. The 'new wave' masters Adoor and Aravindan remained in the field with films like Elippathayam, Mukhamukham, Esthappan, Pokkuveyil and of late Chidambaram and Oridath. Adoor's latest film 'Anantharam', Pavithran's 'Uppu' and Mohanan's 'Purushartham' are significant films of the Malayalam cinema in the year 1987. Aparna Sen, Nirad Mohapatra and Prakash Jha are among the few new film makers who became popular with their films like 36 Chowrighee Lane, Parama, Maya Mriga and Damul.

The main bulk of Indian cinema still remains far from reality, topicality and genuine cinematic art, whether with or without social purpose. The huge glossy dazzling frame is there, but the soul is missing. The mass audience mind remains equally dormant and unresponsive to change. The future hope of Indian cinema lies as much with a gradual change in the mass mind.

Largest Film Producer

India is the largest producer of films in the world. During 1985, 912 feature films were certified by the Central Board of Film Certificates for public exhibition. Of these, 892 were in colour and 20 in B & W. (However the 1986 figure has come down with a total production of 840 films)

Language	*Films produced -1984*	*1985*
Telugu	*170*	*198*
Hindi	*165*	*187*
Malayalam	*121*	*137*
Oriya	*14*	*17*
Marathi	*10*	*16*
Hariyanvi	*4*	*10*
Assamese	*5*	*10*
Bhojpuri	*1*	*6*
Nepali	*1*	*4*
Rajasthani	*2*	*3*
Urdu	*1*	*2*

There are 12,700 public cinema halls in the country. It is estimated that about 100 million people see films in a week.

PRESS, TV AND RADIO

The Indian print media consists of 36 centenarians. The Gujarati daily *Bombay Samachar* published from Bombay is the oldest existing newspaper. It was established in 1822. During 1984 Hindi dailies dominated in terms of numbers but in single unit circulation two Bengali dailies – Ananda Bazar Patrika and Jugantar – dominated.

At the end of 1984, the total number of news papers in the country was 21,784 as compared to 20,758 in 1983, an increase of 4.9 per cent. Amog them, 1609 were dailies, 111 tri/bi-weeklies, 6469 weeklies and 13595 other periodicals.

News papers were published from all the states and union territories except from Arunachal Pradesh and Lakshadweep. Uttar Pradesh claimed the top position with 3,063 news papers published from the state. It was followed by Delhi (2,772), Maharashtra (2,735) and West Bengal (2,378). More than one thousand new papers came out from Tamil Nadu (1,328), Rajasthan (1,210), Andhra Pradesh (1,198) and Kerala (1,112).

News papers were broughtout in 92 languages. Apart from the 16 principal lanagues, news papers were published in 76 other languages, and a few foreign languages. The

highest number was in Hindi (6,370) followed by English (3,961).

Number of News Papers

Language	Dailies	Weeklies
Hindi	554	2900
English	138	440
Assamese	3	28
Bengali	52	433
Gujarati	41	177
Kannada	93	173
Kashmiri	—	1
Malayalam	118	125
Marathi	132	391
Oriya	17	42
Punjabi	29	192
Sanskrit	2	4
Sindhi	7	22
Tamil	113	134
Telugu	42	167
Urdu	182	723
Bilingual	35	382
Multilingual	9	68
Others	42	67
Total	1609	6469

India has 4 news agencies – Press Trust of India (PTI), United News of India (UNI), Samachar Bharati and Hindustan Samachar.

PTI was set up on 27 August 1947. It took over from the Associated Press of India (API) and Reuters. It has 124 news bureaux in the country including computerised offices in the four metropolitan cities.

UNI was registered as a company in 1954 and started news operation in 1961. In 1982 it launched its Hindi news ervices 'UNIVARTA'. It operates a news service to the media in four Gulf countries.

Under the Press Council Act, 1978, the first *Press Council of India* was constituted in 1979, the second in February 1982 and the third in July 1985. It is meant to safeguard freedom of press, maintain and improve the standard of news papers and news agencies.

Television: TV was introduced in India in September, 1959 with the establishment of a centre at Delhi as a pilot project. Over the years, it acquired its Indian name *Doordarshan* and expanded its reach and area of activities in the spheres of information, education and entertainment.

During 1986-87 thirteen transmitters were commissioned raising the total in the country to 192. Five more are scheduled to be commissioned immediately. Second channels in Madras and Calcutta are scheduled to be commissioned during 1987-88.

Srinagar, Jalandhar, Lucknow, Calcutta, Madras, Bangalore, Bombay and Delhi are already linked on microwave system for simultaneously receiving and telecasting TV signal. It is now proposed to link Hyderabad and Trivandrum also.

INSAT multiple service project has been made use of by Doordarshan for direct telecast of the programme and for the national networking of the existing terrestial transmitters through the use of microwave system. Telecasts of higher education programmes which commenced on August 15, 1984, via INSAT-1B continue successfully.

On August 15, 1984, a daily national programme of 90 minutes for a simultaneous telecast throughout the country was introduced. The programme is currently telecast for a minimum of 155 minutes daily from 8.40 p.m. to 11.15 p.m. 1987 saw the introduction of daily morning telecast from 7.30 to 8.15.

The commercial service of Doordarshan made a modest beginning in January, 1986. The service has been extended through more Kendras resulting in substantial increase in revenues as is evident from the following figures.

1982–83	Rs.15.89 crores
1983–84	Rs.19.79 crores
1984–85	Rs.31.43 crores
1985–86	Rs.60.20 crores
1986–87	Rs.80.53 crores
(upto January 1987)	

The revenue in 1987 alone is expected to be around Rs.200 crores.

T.V. Sets: The first indigenous Black and White TV receiver was produced in India in 1969. From a production level of a few thousand sets in 1970, the industry has grown to produce 3 million sets in 1986. Of this 2,150,000 are black and white and 900,000 colour.

It is estimated that at the end of 1987 India will have 13.5 million TV sets. This is expected to go up to 29.2 million by 1990 and 45.6 million by 1992.

Radio: Broadcasting in India started in

Among the centenarins are such stalwarts as The Times of India, The Hindu, The Statesman *and the* Amrita Bazar Patrika. Malayala Manorama, *publishers of* Manorama Year Book, *joins this select band in 1988.*

Founded by Kandathil Varghese Mappillai, Malayala Manorama is now published simultaneously from four centres — Kottayam, Calicut, Cochin and Trivandrum. The latest unit in Trivandrum receives page-images by facsimile transmission. Malayala Manorama is the second newspaper in the country to use this system after 'The Hindu' of Madras.

Malayala Manorama strides into the centenary year with many proud achievements, the greatest being the highest circulation in India. According to the ABC report for January—June 1987, it has a daily paid sale of 6,30,068 copies (Circulation on Nov. 1, 1987: 6,51,568).

Double that of the International Herald Tribune! And it too reaches all corners of the globe, wherever there are Malayalees.

*Kerala has two more centenarians—*Satyadeepam *of 1876 and* Deepika *of 1886.*

Incidentally the print order of Manorama Year Book 1988 is 1,00,000 — highest by any publication of its kind in India.

Now some world statistics: *Oldest Newspaper:* Post Och Inrikes Tidningar, Sweden. Founded in 1645. *Largest Daily:* New York Times of Sunday 17 Oct 1965 (946 pages). *Highest Circulation:* Yomiuri Shimbun, Japan (1,41,34,187 on 1st April 1986). ●

Phones: Global Reach Grows

Telecommunication in India made a big leap during 1987 when International Subscriber Dialling (ISD) was opened to 150 countries around the globe. The inauguration of the India – UAE submarine cable system in November was another boon for those who wanted direct access to the Gulf.

All the 360 centres in India with Subscriber Trunk Dialling (STD) facility have now been provided with ISD facility.

Another 339 centres will be provided these facilities during the Seventh Plan.

According to the annual report of the Department of Telecommunicaitons for 1986-87, all the cities (216) and towns (3029) in the country as per 1981 census have access to the telephone network through telephone exchange. Out of 575,936 villages as per the 1981 census about 8877 are served by exchanges and 22,201 by long distance (more than 5 km) public telephones.

The registered demand for telephone connection reached 41.51 lakhs during 1986-87. A total of 774 new exchanges were commissioned during 1986-87 raising the total number of departmental exchanges to 11,482. The equipment capacity of exchanges rose to 31.66 lakhs. Waiting list: 9.86 lakhs.

Telex subscribers in the country total 30,515. Subscribers in 179 countries of the world are accessible to them.

As on 31-3-86 there were in all 1,44,39 post offices in the country. Of these 1,28,810 were in rural areas and 15,586 in urban areas. The average area served by a post office was 22.76 sq km and the average population served was 474 (based on 1981 census).

In the year 1985-86 the postal service handled nearly 1211 crore pieces of mail excluding money order. The total number of registered articles handled was 304 lakhs.

Nearly 1238 lakh inland money order c a total value of Rs.2013 crore were issuec the commission realized thus being Rs.55. crores. The total value of postal order issued was Rs.22.79 crores represented b 243.9 lakh postal orders.

During 1985-86 thirty-eight special com memorative stamps were issued.

1927 with two privately owned trnsmitters in Bombay and Calcutta. The government took them over in 1930 to establish Indian Broadcasting Service. The name was changed to All India Radio (AIR) in 1936 and since 1957 it is known as Akashvani.

Akashvani today has 98 radio stations, 142 MW transmitters with 8,245 kW power, 40 SW transmitters with 3,865 kW power and 4 VHF (FM) transmitters with 60 kW (ERP) power. This will cover 95 per cent population and 86 per cent of the area of the country.

The Seventh Plan (1985-90) of the AIR is under implementation. With the completion of this plan, the country will have 205 broadcasting stations, 150 MW transmitters with total power of 10,856 kW, 54 SW transmitters with total powers of 7,293 kW and 104 FM transmitters with the total ERP power of 3,270 kW.

The News Services Division broadcast ery day 273 news bulletins for a dursh over 36 horus in its home, external regional services. In the home service Delhi, 81 bulletins are put out in 19 langu for a duration of over 11 hours. The ext services broadcast daily programmes fo hours and 35 minutes in 24 languages

The *Vividh Bharati Service* provides e tainment to listeners. Two high power s wave transmitters in Madras and Bombay the transmissions. There are 29 *Comm Broadcasting* centres. Ten percent of the broadcasting time is alloted for advertiser Gross income earned for the last 5 y 1982-83: Rs.15.51 crores, 1983-84 Rs. crores, 1984-85: Rs.15.69 crores, 198 Rs.19.82 crores, 1986-87 (upto January 1 Rs.20.23 crores.

Milestones in Communication

35,000 B.C. Cro-Magnon period; speculation that language existed.
22,000 B.C. Pre-historic cave paintings.
4,000 B.C. Sumerian writing on Clay Tablets.
3,000 B.C. Early Egyptian hieroglyphics.
2,000 B.C. Mohanjo Daro and Harappan script and seals.
1,800 B.C. Phoenician alphabet.
1,000 B.C. Early Greek Script.
600 B.C. Earliest Latin inscriptions.
450 B.C. Carrier Pegions used by the Greeks.
130 B.C. Library of Alexandria built.
350 A.D. Books replace scrolls.
600 A.D. Book printing in China.
676 A.D. Paper and ink used by Arabs and Persians.
1,200 A.D. Paper and ink art in Europe.
1,453 A.D. Gutenberg Bible printed.
1,562 A.D. First monthly newspaper in Italy.
1,594 A.D. First magazine in Germany.
1,639 A.D. First printing machine in North America.
1,642 A.D. Early adding machine developed by Blaise Pascal.
1,709 A.D. Copy-right law in England.
1,791 A.D. First Amendment to the US Constitution.
1,819 A.D. Flat-bed press invented by David Napier.
1,827 A.D. Photographs on metal plates.
1,830 A.D. "Analytic Engine" (Computer) principles; Charles Babbage.
1,835 A.D. Samuel Morse introduced the Telegraph.
1,846 A.D. Sightening Press; high speed printing.
1,855 A.D. Printing telegraphs, David Hughes.
1,866 A.D. Translantic cable completed.
1,876 A.D. Telephone invented; Alexander Graham Bell.
1,888 A.D. Radio waves identified.
1,895 A.D. Radio telegraphy; Guglielmo Marconi.
1,895 A.D. Motion picture camera; Auguste and Louis Lumiere.
1,900 A.D. Speech transmitted via radio waves.
1,912 A.D. Motion picture a big business.
1,920 A.D. Home television speculated upon.
1,927 A.D. American Telephone and Telegraph Co demonstrates T.V.
1,936 A.D. Life magazine founded.
1,942 A.D. First Electronic computer in US.
1,946 A.D. Xerography invented; Chester Carlson.
1,947 A.D. Transistor invented; Bell Laboratories.
1,949 A.D. First stored programme computer.
1,951 A.D. Colour TV introduced in US.
1,957 A.D. Russia launches the first satellite-Sputnik.
1,958 A.D. Stereophonic recordings in U.S.
1,961 A.D. Push button telephones
1,962 A.D. Telestar satellite introduced.
1,968 A.D. Portable video recorders
1,970 A.D. Micro electronic chips coming into wide use.
1,975 A.D. Flat wall TV screen invented.
1,975 A.D. Fiber optic signal transmission now highly developed.
1,975 A.D. First wide marketing of TV computer games.
1,978 A.D. Video disc system test marketed.
1,979 A.D. 3-D TV demonstrated.
1,980 A.D. Home computer available for less than $ 500.
1,980 A.D. New breakthrough in spc[illegible] photography.
1,981 A.D. Space shuttle 'Columbia' l successful mission.
1,982 A.D. European consortiu[illegible] ches multiple satellites.
1,982 A.D. Major advances [illegible] mentation of mob[illegible]
1,986 A.D. Live transm[illegible] beaming thro[illegible] network

REACHING OUT TO SPACE

India's space programme has come of age. With the launching of her own satellites in her own vehicles and deploying her own communication satellites to geostationary orbit, India has earned a coveted place in the exclusive space club. Indians are joining the select band of space-travellers also.

The Indian Space programme is directed towards harnessing space technology in a self-reliant manner for:- (1). Satellite communications including direct TV broadcasting to community receivers. (2). Natural resources survey & management including environmental monitoring and meteorological forecasting.

o achieve these ends, India is actively involved in developing and putting into operaon a series of satellite and launch vehicle ystems.

The Indian Space programme began with ne setting up of a sounding rocket launching acility at Thumba, a fishing hamlet near rivandurm in 1963. The Thumba Equatorial ocket Launching Station (TERLS), which in 968 was dedicated to the United Nations)rganization, served as the nucleus for the rowth of Indian Space Research Organization ISRO), which today encompasses the following Centres.

(1) Vikram Sarabhai Space Centre (VSSC), Trivandrum; (2) SHAR Centre, Sriharikota; (3) SRO Satellite Centre (ISAC), Bangalore; (4) luxiliary Propulsion System Unit (APSU), Bangalore; (5) Space Applications Centre SAC), Ahmedabad; (6) Development & Educational Communication Unit (DECU), Ahmedabad; and (7) ISRO Telemetry, Tracking & Command Network (ISTRAC) with its headquarters at Bangalore.

The Department of Space (DOS) located at Bangalore is responsible for the execution of ndia's Space activities through ISRO. The 'hysical Research Laboratory (PRL) at Ahmedaad, an institution supported mainly by DOS, onducts research in space and related scienes. The DOS-supported National Remote ensing Agency (NRSA) at Hyderabad, is engaged in using remote sensing techniques for he survey and management of natural reources.

The Indian Space Programme took a major forward step with the launching of the first indigenously built spacecraft, Aryabhata, in 1975. This 360-kg satellite, designed to acquire the basic expertise in satellite technology, was placed into orbit from the Soviet Union by a Soviet rocket carrier.

Aryabhata was followed by *Bhaskara–1,* an experimental earth observation satellite. Launched in 1979, Bhaskara–1 carried TV camera and microwave radiometer payloads for Earth observation studies in hydrology, forestry, snow melting and oceanography. An improved version of this satellite, Bhaskara-II, was launched in 1981. The Bhaskara Satellites were also launched by Soviet rocket carriers.

In the area of satellite communication, ISRO conducted two largescale experiments relevant to India's communication needs. They were: (a) Satellite Instructional Television Experiment Project (SITE) during 1977–79. Under SITE, developmental programmes were telecast direct to community receivers in 2,400 villages, using the American satellite, ATS–6. Similarly, with the aid of the Franco-German 'Symphonie' spacecraft, a series of innovative communication experiments were conducted under STEP.

Parallel to spacecraft technology, India took steps for building its own first satellite launch vehicle, SLV–3. The four-stage, solid propellant SLV–3, during its three successful flights in 1980, 1981 and 1983, orbited Indian–built Rohini series satellites.

In June 1981, India's first experimental geostationary communications satellite, APPLE, was successfully launched aboard the European Space Agency's Ariane launch vehicle from Kourou in French Guyana. During this satellite's active in-orbit life of 27 months, it was used to conduct a variety of advanced satellite communication experiments. It also provided live TV coverage of selected national events.

The successful launching of INSAT–IB, a multi-purpose domestic satellite, on board the American Space Shuttle in 1983 , and its operationalisation has given India the capability of country-wide domestic telecommunications, meteorology and direct community TV broadcasting.

India was to have launched INSAT-IC aboard America's Space Shuttle Challenger. But as the series was aborted due to a tragic mid-air explosion in early 1986, India has now contracted Ariane Space to launch it in June 1988.

The SLV-3 project provided India with the expertise for embarking on the development of larger and more sophisticated launch vehicles. Meanwhile the failure of an Augmented Satellite Launch Vehicle (ASLV) on 24 March, 1987 has dampened the spirits of Indian scientists a little. ASLV is meant to orbit 150-kg satellites into space. Polar Satellite Launch Vehicles (PSLV) capable of injecting 1000-kg class satellites into a polar sun-synchronous orbit are under development.

Another important project on hand is the Indian Remote Sensing Satellite (IRS) series. The first such satellite is scheduled to go into orbit in 1988 launched from the Soviet Union. The three-axis stabilised 850-kg IRS will carry payload to collect data on agriculture, forestry, hydrology, snow-melting and meteorology.

ISRO had developed and qualified a series of Sounding Rockets like RH-125, RH-200, Centure, RH-300, RH-560, etc., for meteorolo-

Milestones In Indian Space Programme

1962: *Indian National Committee for Space Research (INCOSPAR) formed by the Department of Atomic Energy.*

1963: *Thumba Equatorial Rocket Launching Station (TERLS) established in response to the longfelt need of scientists to make in-situ measurements of upper atmospheric parameters, particularly of equatorial electrojet.*

1965: *The Space Science & Technology Centre (SSTC) established in Thumba as a research and development laboratory in space technology for achieving self-reliance in this field.*

1967: *An earth station for satellite telecommunication set up at Ahmedabad to provide facilities for training and research in this technology. Engineers trained here help set up the first Indian commercial satellite telecommunication earth station at Arvi, near Pune.*

1968: *TERLS dedicated to the United Nations.*

1972–1976: *A number of air-borne remote sensing experiments conducted for surveying earth resources.*

1975: *The first Indian Satellite, Aryabhata, launched on April 19, 1975 from the Soviet Union.*

1975–1976: *The first major space application programme. Satellite Instructional Television Experiments (SITE), conducted during August 1975, July 1976 using the American Satellite, ATS-6.*

1977: *The Satellite Telecommunication Experiments Project (STEP) carried out from the middle of 1977 to 1979 using the Franco-German satellite, Symphonie.*

1979: *The Second Indian Satellite, Bhaskara, a satellite for Earth observations, Bhaskara, launched on 7th June 1979 from the Soviet Union.*

1980: *SLV-3, India's first Satellite Launch Vehicle, puts Rohini Satellite into a near-earth elliptical orbit from Sriharikota on 18th July, 1980.*

1981: *India's first experimental geostationary communication satellite, APPLE, successfully launched by ESA's Ariane Launch Vehicle from Kourou, French Guyana, on 19th June 1981. India's second satellite for Earth observation, Bhaskara-II, launched from the Soviet Union on 20th November, 1981*

1983: *Second developmental flight of SLV-3 successfully conducted from Sriharikota on 17th April 1983 and RS-D-2 satellite orbited INSAT-1B India's multipurpose domestic satellite, launched on [illegible] USA's Space shuttle, 'Challenger' [illegible] August 1983*

1984: *The first joint Indo-[illegible] mission launched on [illegible] Ldr Rakesh Sharma became cosmonaut.*

1988: *INSAT-IC [illegible]*

gical and upper atmospheric research. RH–560 is India's largest Sounding Rocket capable of reaching an altitude of 350 km with a 100–kg payload weight. Tests are regularly conducted from India's three sounding rocket ranges at Thumba, Sriharikota and Balasore.

India attaches great importance to co-operation with other countries and international agencies, most prominent among them being the USSR, the USA, The Federal Republic of Germany (FRG), France, the European Space Agency (ESA), the United Kingdom (UK) and the United Nations.

Indo-Soviet collaboration in space began with the USSR extending technical assistance to India in setting up her Thumba Equatorial Rocket Launching Station (TERLS), way back in 1962. TERLS was dedicated to the United Nations in 1968 and has since operated as an international sounding rocket range.

Regular meteorological soundings are being jointly conducted from TERLS by India and the USSR using the Soviet M–100 rockets. The collaboration between the two countries further intensified with the USSR offering free launches for the three Indian satellites, Aryabhata, Bhaskara–1 and Bhaskara–II.

The USSR also helped India establish her Satellite Tracking & Ranging Station (STARS) and offered the Luna–24 moon rock samples to Indian scientists for investigation. Scientists from the two countries have also conducted joint balloon experiments in gamma–ray astronomy from India's balloon facility at Hyderd.

With the successful completion of the eight-day Indo-Soviet joint manned mission abroad Soyuz-T–11/Salyut–7, the collaboration between the two nations in the peaceful use of outer space, which entered its twenty-second year in 1984, literally came of age.

The launch of the first Indian Remote Sensing Satellite (IRS), would again be from the USSR on board the first launch commercially procured from that co

The dedication of TERLS to the U conduct of instructional television ments via USA's ATS–6 satellite and munication experiments using the F German 'Symphonie' spacecraft, the lau of Aryabhata and Bhaskara spacecraft Soviet Union and of APPLE on board Ariane, and the orbiting of INSAT–1B by Space Shuttle are important landma India's policy of active collaboratio other countries in harnessing Spa national development.

As part of ISRO's co-operation with in many technologies/processes develop ISRO in the areas of electronics, chemic materials have been transferred to industries for commercial production

National Science Day

India will have a National Science from now onwards. February 28th of year will be observed as the Nat Science Day.

On this day in 1928, Sri C. V. Ra observed the phenomenon concer light scattering — the Raman Effe which brought him the Nobel Prize.

The decision to honour the Nobel L ate like this is expected to provi stimulus to science education an popularise science among the yo people.

The minimum goal of the cou science planners is to achieve uni immunisation, drinking water supp villages, raising production of oilseed improving communication facilities

STATES AND TERRITORIES

The Union of India, made up of 25 States and 9 Union Territories, is in a state of demographic transition. Demographic transition indicates the passage of a population from high mortality and fertility rates to low mortality and low fertility.

The 1981 census count placed the population at 685.2 million as on the March. The population has grown at an average rate of 0.83 per cent* betwee

* Percentage based on the provisional figure of 68

Union of India: Basic Data

Region	Capital	Area (sq km)	Population (1981)	
INDIA	New Delhi	3,287,263@	685,184,692	
States:	Capital:	Area (sq km)	Population (1981)	Percentage to All India†
1 Andhra Pradesh	Hyderabad	275,068	53,549,673	7.82
2 Arunachal Pradesh	Itanagar	88,743	631,839	0.09
3 Assam‡	Dispur	78,438	19,896,843	2.90
4 Bihar	Patna	173,877	69,914,734	10.20
5 Goa (including Daman & Diu)	Panaji	3,814	10,086,730	0.16
6 Gujarat	Gandhinagar	196,024	34,085,799	4.97
7 Haryana	Chandigarh	44,212	12,922,618	1.89
8 Himachal Pradesh	Shimla	55,673	4,280,818	0.62
9 Jammu & Kashmir	Srinagar/Jammu*	222,236	5,987,389	0.87
10 Karnataka	Bangalore	191,791	37,135,714	5.42
11 Kerala	Trivandrum	38,863	25,453,680	3.71
12 Madhya Pradesh	Bhopal	443,446	52,178,844	7.62
13 Maharashtra	Bombay	307,690	62,784,171	9.16
14 Manipur	Imphal	22,327	1,420,953	0.21
15 Meghalaya	Shillong	22,429	1,335,819	0.19
16 Mizoram	Aizwal	21,081	493,757	0.07
17 Nagaland	Kohima	16,579	774,930	0.11
18 Orissa	Bhubaneswar	155,707	26,370,271	3.85
19 Punjab	Chandigarh	50,362	16,788,915	2.45
20 Rajasthan	Jaipur	342,239	34,261,862	5.00
21 Sikkim	Gangtok	7,096	316,385	0.05
22 Tamil Nadu	Madras	130,058	48,408,077	7.06
23 Tripura	Agartala	10,486	2,053,058	0.30
24 Uttar Pradesh	Lucknow	294,411	110,862,013	16.18
25 West Bengal	Calcutta	88,752	54,580,647	7.97
Union Territories	Headquarters	Area (sq km)	Population 1981	Percentage to All India
1 Andaman & Nicobar Islands	Port Blair	8,249	188,741	0.03
2 Chandigarh	Chandigarh	114	451,610	0.07
3 Dadra & Nagar Haveli	Silvassa	491	103,676	0.02
4 Delhi	Delhi	1,483	6,220,406	0.91
5 Daman & Diu	Daman	112	78,981	0.012
6 Lakshadweep	Kavaratti	32	40,249	0.01
7 Pondicherry	Pondicherry	492	604,471	0.09

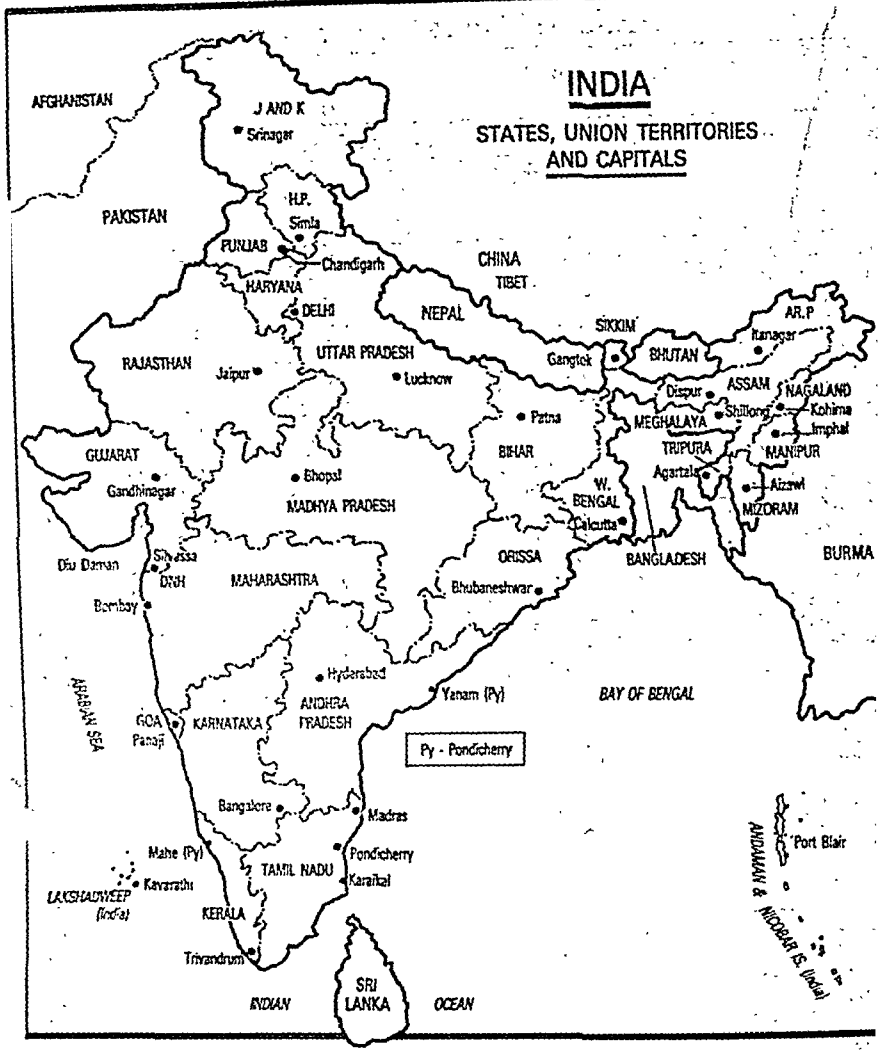
* Srinagar (Summer Capital), Jammu (Winter Capital)

† Uttar Pradesh, Bihar and Madhya Pradesh account for 34.0 per cent or more than one-third of the total population of India

‡ Projected.

@ The total area of the country represents provisional 'Geographical area as on 31st March 1982, supplied by the Survey of India. The area includes 78,114 sq km under illegal occupation of Pakistan, 5,180 sq km illegally handed over by Pakistan to China and 37,555 sq km under illegal occupation of China.

and 1951 and at a more rapid pace of 2.13 per cent in the post-independence period between 1951 and 1981 until the year 2000.



would be 1025 million, about one-half more than what it is today.

There are many stages in the demographic transition beginning with a declining mortality and continuing fertility to a stage where both mortality and fertility rates decline more or less at the same rate and keep the population stable over a period of time.

The difference is essentially a differenc ratios between mortality and fertility rate population group. The Indian nation is n population group in this sense. Rather, made up of various population groups. Tl population groups tend to be so small even a State may contain a large numbe such groups.

But at present, the States remain the lowest population group which can be demographically assessed. On this basis, the 15 major States (excluding Assam, where the census has not been completed) may be grouped into four: (i) Jammu & Kashmir, Rajasthan, Uttar Pradesh and Bihar, (ii) Karnataka, Punjab and Andhra Pradesh, (iii) Haryana, Gujarat, Madhya Pradesh, Maharashtra and West Bengal and (iv) Kerala, Orissa and Tamil Nadu.

These 15 states contain 94.2 per cent of India's population. Only three states among them (Kerala, Orissa & Tamil Nadu) with a total population of 100 million or 15.5 per cent, are in an advanced stage of transition with a declining growth rate below 2 per cent. The growth rates of another five states (group iii) with a total population of 216 million or 33.6 per cent have started declining, though still above 2 per cent. The remaining seven states (groups i & ii) with slightly above half the population (50.9 per cent), are just entering the demographic transition with declining mortality but with no significant decline in fertility.

The growth rate for 1971-1981 averages at around 2.48 per annum for all India. As against this, the growth rate for group (i) is above 2.5 and for group (ii) around 2.5, both increasing trends. For group (iii) the growth rate averages below 2.5. Though this is still an increasing growth rate, it is on the low side. Group (iv) shows an average of less than 2, definitely a declining trend.

ANDHRA PRADESH

Area: 275,068 sq km. **Capital:** Hyderabad. **Population:** 53,549,673. **Languages:** Telugu and Urdu. **Literacy:** 29.73%.

Physiography: Andhra Pradesh is the fifth largest state in India, both in area and population. Bounded by MP and Orissa in the north, the Bay of Bengal in the east, T. Nadu and Karnataka in the south and Maharashtra in the west, AP forms the major link between the north and the south of India. The northern area of AP is mountainous with an annual rainfall of 45 to 50 inches. The highest peak *Mahendragiri* rises 4920 ft above the sea level. As we go further south, the rainfall comes down to 20 inches annually. The climate is generally hot and humid. AP is principally fed by the south west monsoon, the north east monsoon contributing about one-third to the rainfall.

The *Krishna* and the *Godavari* are the major river systems in the state. The Godavari is the largest and the broadest river of South India. The Tungabhadra is an important tributary of the Krishna. Other important rivers are the Pennar, Vamsadhara and the Nagavali. All these rivers are rainfed, and are of great economic significance to the state because of their rich hydropower and irrigation potential.

History: The word 'Andhra' is equally applicable to the land, the people and the language, although the language in course of time developed a name of its own—*Telugu*.

The Andhras, originally an Aryan race, migrated to the south of the Vindhyas where they mixed with the non-Aryan stocks. Andhra Pradesh first enters history as part of the great Mauryan empire.

In the 13th century, the Kakatiyas, with their capital at Warrangal, dominated Andhra desa. In 1323, the Tughlak Sultan of Delhi captured the Kakatiya ruler and ended the dynasty. The Tughlaks never cared to annex the Kakatiyan dominions and four local kingdoms arose out of the old Kakatiyan empire.

One of these kingdoms was Vijayanagar. The Vijayanagar empire stood as a bulwark against Muslim expansionism for more than 200 years. Vijayanagar had to contend with Muslim sultanates in the north time and again. Sometimes Vijaynagar joined one sultan against another. These tactics finally led to a grand alliance of the sultanates of Ahmadnagar, Bijapur, Golconda and Bidar against Vijayanagar. On 23rd January, 1565 the Deccan sultans humbled the mighty Vijayanagar army at the battle of Talikota.

The Qutb Shahis of Golconda laid the foundations of the modern city of Hyderabad. Emperor Aurangzeb routed the Qutb Shahis and appointed Asaf Jan the governor of Deccan. As the Mughal Empire tottered under Aurangzeb's successors, the Asaf Jahis made themselves independent rulers under the title of Nizam. The Nizams became involved in the

Anglo-French wars in the Deccan and had finally to enter into a subsidiary alliance with the British in 1800.

Andhra Pradesh is the first state in India that has been formed on a purely linguistic basis When India became independent, the Andhras, that is, the Telugu-speaking people, were distributed in about 21 districts, 9 of them in the Nizam's Dominions and 12 in the Madras Presidency. On the basis of an agitation on Oct. 1, 1953, 11 districts of the Madras State were put together to form a new Andhra State with Kurnool as capital.

On Nov. 1, 1956 in accordance with t recommendations of the State Reorganizati Commission, the Andhra State was enlarged the addition of nine districts formerly in t Nizam's Dominions. Hyderabad, the form capital of the Nizam, was made the capital the enlarged Andhra State.

AP thus consisted of three distinct regio (1) coastal region, made up of eight distri generally called *Andhra,* (2) the inter region, consisting of four districts collectiv known as *Rayalaseema* and (3) *Telenga* region, consisting of the capital Hyderab

and nine adjoining districts.

From 1969 to 1972 AP was rocked by riots, first in Telengana, then in Andhra on the question of bifurcation of the state. The Central Government refused to consider the question of bifurcation. A six-point formula was put forward by the Prime Minister Mrs. Indira Gandhi as a compromise. The formula was generally accepted and peace was restored in the state.

The six-point formula has been incorporated into the Constitution as the Thirty second Amendment 1973.

Administration: The legislature in the A.P. is unicameral, the Legislative Assembly has 295 seats. A.P. Legislative Council was abolished on June 1, 1985.

Districts

District	Area (sq km)	Population†	Headquarters
Andhra Region			
Anantapur*	19130	2548012	Anantapur
Chittoor*	15152	2737316	Chittoor
Cuddapah*	15359	1933304	Cuddapah
E. Godavari	10807	3701040	Kakinada
Guntur	11391	3434724	Guntur
Krishna	8734	3048463	Machilipatnam
Kurnool	17658	2407299	Kurnool
Nellore	13076	2014879	Nellore
Prakasam	17626	2329571	Ongole
Srikakulam	5837	1959352	Srikakulam
Visakhapatnam	11161	2576474	Visakhapatnam
Vizianagaram	6539	1804196	Vizianagaram
W. Godavari	7742	2873958	Eluru
Telengana Region			
Adilabad	16128	1639003	Adilabad
Hyderabad	217	2260702	Hyderabad
Ranga Reddy	7493	1582062	Hyderabad
Karimnagar	11823	2436323	Karimnagar
Khammam	16029	1751574	Khammam
Mahaboobnagar	18432	2444619	Mahaboobnagar
Medak	9699	1807139	Sangareddy
Nalgonda	14240	2279685	Nalgonda
Nizamabad	7956	1679683	Nizamabad
Warrangal	12846	2300295	Warrangal
Total		53549673	

* Rayalaseema.
† Census of India 1981.

Andhra is divided into 23 districts. Two new districts created are Ranga Reddy District. (August 15, 1979, from Hyderabad District) and Vizianagaram District (June 1, 1979 from Visakhapatnam and Srikakulam Districts). The headquarters for Ranga Reddy District for the time being is Hyderabad City and for Vizianagaram district, Vizianagaram city.

State of Economy: A.P. has a widely diversified farming base, with a rich variety of cash crops. It is surplus in foodgrains and can rightly claim to be the granary of the south. Agricultural sector accounts for around 50% of the state's income and provides livelihood to 70% of the population. The crops extensively cultivated in the state are paddy, jowar, bajra, ragi, maize, groundnut, chillies, tobacco, cotton, castor and sugar cane.

A.P. leads all other states in the production of tobacco with a virtual monopoly of virginia tobacco. The production of tobacco in 1985-86 was 1.45 lakh tonnes and production of ground nut was 13.10 lakh tonnes. Production of foodgrain reached 103.73 lakh tonnes in 1985-86.

Andhra Pradesh which has for long been at the bottom of the industrial map of India today stands fifth in the country in terms of industrial development, sixth in respect of employment, seventh in respect of output and eighth in respect of productive capital and value added.

There are 606 medium and large scale industries with a capital investment of nearly Rs. 3060 crore, providing employment for more than 4.25 lakh persons. Further, there are 58263 small scale units in the state with an investment of Rs. 795.22 crore, providing employment for about 5.51 lakh persons.

The work on the steel plant at Visakhapatnam is in full swing. Foundation for the railway carriage repair workshop at Tirupati has been laid.

Tourist Centres: Andhra Pradesh is rich in historical monuments. It possesses many holy temples which attract large numbers of pilgrims and tourists.

Tirupati in Chittoor district houses one of the most famous temples in India. The presiding deity is known as Venkateswara. The main temple is situated on a hill-top, Tirumalai, and is a masterpiece of South Indian architecture.

The temple of Sriramachandra at Bhadrachalam, the Mallikarjunaswami temple at Srisailam, the Ahobalam temple, Srikurmam temple and the Simhachalam temple are among the other famous temples of Andhra Pradesh. The main tourist

capital of the state, *Hyderabad*. The capital is in reality the twin cities of Hyderabad and Secunderabad linked together by the Hussain Sagar. Places of interest are the Char Minar built in 1591, Osmania University, State Museum and Art Gallery, Salarjung Museum, Health Museum, Nehru Zoological Park, Public Gardens and Birla Mandir.

Another important centre of tourism is Golconda, about 8 km from Hyderabad. The capital of the Qutb Shahi Sultans in the 1(century, Golconda is rich in historical mor ments which include the famous Golcon Fort. Golconda was known the worldover, a rich mine of diamonds in the mediaeval tim The famous diamonds, *Kohinoor* and *P* came from the diamond mines of Golcon

Governor: Kumud Ben Mani Shanker Jos
Chief Minister: N. T. Rama Rao. (Telu Desam).

ARUNACHAL PRADESH

: 83,743 sq km **Capital:** Itanagar. **ulation:** 6,32,000. **Languages:** Monpa, Miju, Sherdukpen, Nishi, Apatani, Hill Miri n, Adi, Idu, Digaru, Miji, Khampti, Sing- Tangsa, Nocte, Wancho. **Literacy:** 20.9%.

unachal Pradesh (Land of the Dawn-lit ntains) is a thinly populated hilly tract on eastern most part of India, surrounded on e sides by the international border with tan to the west, China to the north and ma to the east and Assam to the south. **siography:** Arunachal is entirely moun- ous except for thin strips of flat land most vhich adjoin Assam. Dense forests cover e than two-thirds of the territory. The el potential is very high.

he population of Arunachal is predomi- tly tribal. All the tribes belong to Sche- Tribes. According to the 1981 census, Tribes formed 79 per cent of the ulation as against an average of 7 per cent the whole of India. There are about 20 or tribes which are divided into a number sub-tribes. The principal tribes are: Adi, ni, Apatani, Tagin, Mishmi, Khampti, Nocte, ncho, Tangsha, Singpho, Monpa, Sherduk- , Aka, etc. These tribes speak their own gues. These tribal people are colourful and pitable and fond of music and dance.

tory: Arunachal, originally known as the th East Frontier Agency (NEFA), was placed ler the administration of the Union Gov- ment in 1948. It was declared a Union ritory under the name of Arunachal lesh on January 20,1972. It became a full ged state of the Union in December, 1986.

ninistration: On 15th August 1975, the lesh Council of Arunachal Pradesh was cil of Ministers was also constituted.

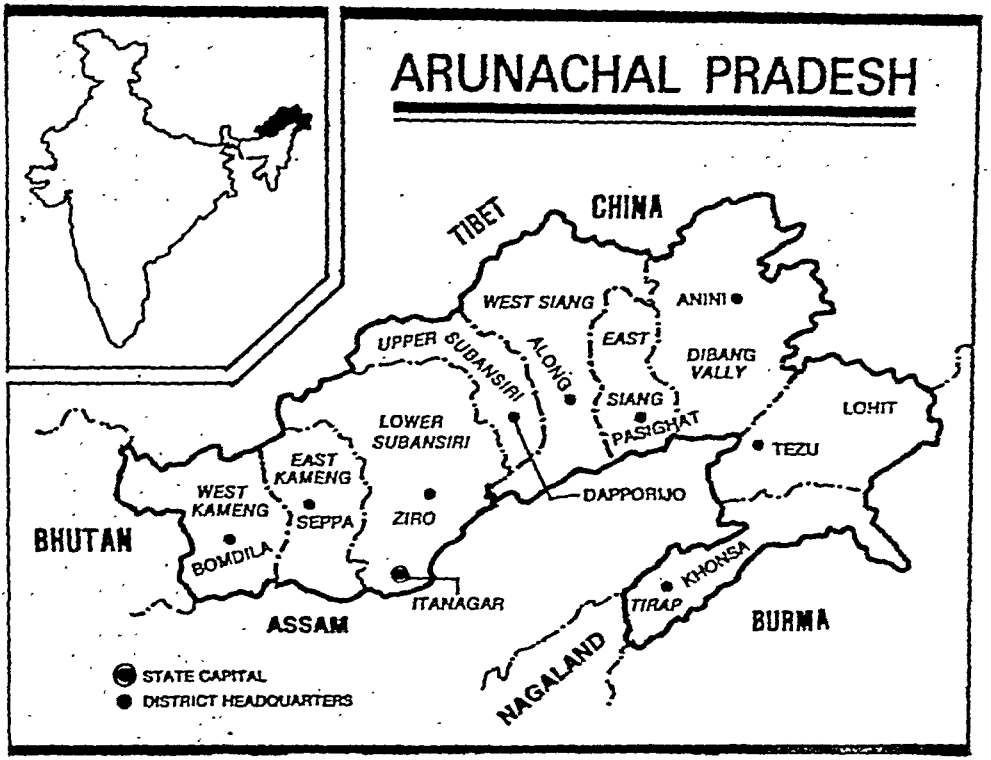
The territory is divided into 10 distri each under a Deputy-Commissioner. Itana is the capital of the territory and is in Lo Subansiri district. The state is administered a Governor.

Districts

District	Population (1981 census)	Area (sq km)	Hea quarte
West Kameng	41,567	9,594	Bomdil
East Kameng	42,736	4,134	Seppa
Lower Subansiri	1,12,650	13,010	Ziro
Upper Subansiri	39,410	7,032	Daporij
West Siang	74,164	12,006	Along
East Siang	70,451	6,512	Pasigha
Dibang Valley	30,978	13,029	Anini
Lohit	69,498	11,402	Tezu
Tirap	1,28,650	7,024	Khonsa
Tawang	21,735	NA	Tawang
Total	6,31,839	83,743	

State of Economy: Nearly 46 per cent of population of Arunachal Pradesh is engaged agriculture. Irrigated area forms 26 per cent the total cultivated area of about 1,33,430 h tares. The traditional method of agriculture jhumming, a kind of shifting cultivation. forests are cleared and crops are raised for on three years, depending on the fertility of the s Thereafter the cultivators move on elsewher determined effort is being made to wean people from jhumming. A total area of 56, hectares of land has been brought under per nent cultivation. The main crops are rice, ma millet, wheat and mustard.

About 61,000 sq km of the territory is cove



of revenue for the territory.

The territory has a bright prospect of forest-based industries. A remarkable number of medium and small scale industries including saw mills, plywood and veneer mills, rice mills, fruit preservation units, oil expellers, besides handloom and handicraft industries have been established. The territory has 1086 units of small scale and 12 units of medium scale industries. Construction of a cement plant with a capacity of 30 tonnes per day and drilling of crude oil are in progress. A paper mill with a capacity of 100 tonnes per day is also to be set up very soon. **Tourist Centres:** Capital city of Itanagar with remnants of the Itafort, ancient Buddhist Monastery near Tawang, archaeological centres of Malinitan, Bismak Nagar, Nandapa Wildlife Sanctuary are of tourist interest.

Lt. Governor: R. D. Pradhan. **Chief Minister:** Gegong Apang.

ASSAM

Area: 78,523 sq km **Capital:** Dispur. **Population:** 2,27,66,000. **Language:** Assamese. **Literacy:** 28%.

Scholars are not agreed on the origin of the name "Assam". Some say that Assam is called so, because of its unequal terrain—that is, hills interspersed with valleys. They rely on a similar-sounding Sanskrit word, meaning unequal. This explanation appears to be far-fetched. A more acceptable version is that Assam is only the anglicised version of 'Asom'—which was the name the Ahoms gave to the country, when they conquered it.

Physiography: Geographically Assam is a shadow of its former self. It has been reduced to one-third of its original size in [illegible] time. In 1947 Assam had an area of [illegible] sq km excluding the then North East Frontier Agency (NEFA), [illegible] Pradesh. Today the [illegible]

78,523 sq km. The depletion in geographical area resulted from political changes that came one after the other since 1947.

In the partition of India (1947) Assam lost Sylhet district, except a major portion of Karimjang sub-division, to East Pakistan, now Bangladesh. Out of the 27 lakh population of Sylhet, Assam retained only 7 lakh, the rest going to Pakistan. Thereafter, Assam continued to lose territory and population step by step as Nagaland, Meghalaya, Mizoram and Arunachal Pradesh were separated from it.

Assam, as it is today, may be divided into two important physical regions—the Barak Valley and the Brahmaputra valley.

Assam is dominated by the Brahmaputra river. The total length of the river from the source to the sea is 2900 km. Its drainage area is roughly 935,500 sq km. It has 120 tributaries. After travelling 1609 km through Tibet, the river turns southeast making a hair-pin bend at a place, a few miles east of Namcha Burwa. Thereafter it is joined by tributaries. After crossing the Garo Hills, it makes a southerly turn and meets the Ganga at Goalundo. During the course of its flow in Assam for about 725 km through almost every district, the river has carved out an extensive valley of its own.

Rainfall in Assam is one of the highest in the world. It varies between 178 and 305 cm. All this rainfall is concentrated in 4 months, June - September. This concentration of rainfall affects the state in two diametrically opposite ways, namely floods and droughts.

History: An ideal meeting ground for diverse races, Assam gave shelter to streams of human waves carrying with them distinct cultures and trends of civilization. Austro-Asiatics, Negritos, Dravidians, Alpines, Indo-Mongoloids, Tibeto-Burmese and Aryans penetrated into Assam through different routes and contributed in their own way towards the unique fusion of a new community which came to be known in later history as the Assamese. Assam, however, remained predominantly a land of the Tibeto-Burmese. The vast section of the people of Assam belong either to this stock or owe their origin to the fusion of this stock with other racial groups.

Assam, known in ancient lore as Kamarupa, originally included in addition to modern Assam, parts of modern Bengal and Bangladesh. Guwahati, the pulsating centre of Assam, is an ancient town whose history goes back to the puranic days. The city, anciently known as Pragjyotishpur, was said to have been founded by King Narakasur, who is mentioned in the puranas and epics. His son Bhagadatta led a large elephant force to the battlefield of Kurukshetra, and fell fighting on the side of the Kauravas.

In the 13th century, the country was conquered by the Ahoms under the leadership of Sukapha, a prince of the Shan tribe, in the Upper Irravaddy Valley.

The advent of the Ahoms changed the course of Assam's history. Ahoms fought the local Karchari, Chutia and Moran kings and established their sway in course of time, over the whole of Brahmaputra Valley.

The Ahoms appointed Bharphakans (Viceroys) to rule Kamarupa and Gauhati became the capital of these Viceroys. The last of the Viceroys was Badanchandra, who in an ill-advised bid for power invited the Burmese to help him. The Burmese dislodged the Ahoms and dismissed their Viceroy, Badanchandra. The Ahoms appealed to the British for help.

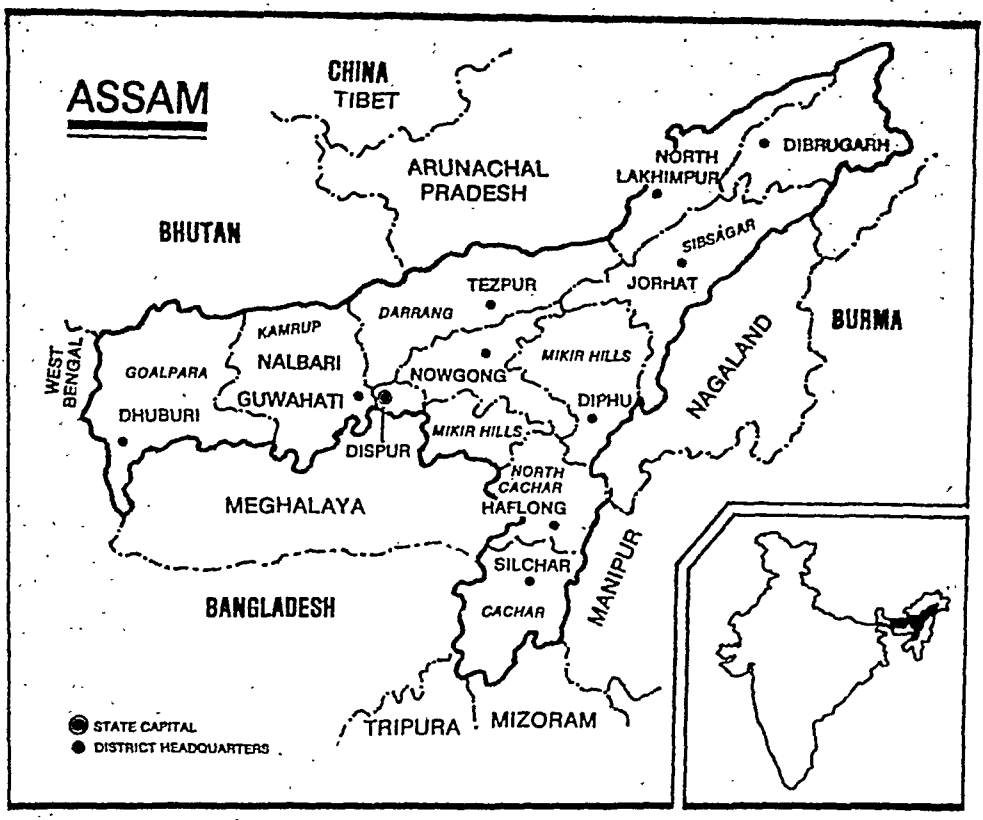
The British defeated the Burmese in several battles, in what has since been called the First Burmese War. With the Treaty of Yandabo in 1826, the Burmese vacated Assam, leaving the British in possession. The conquered territory was placed under the administration of an Agent to the Governor General. In 1832 Cachar was annexed to Assam. In 1835, the Jaintia Hills were made part of Assam. Upper Assam was annexed to Bengal in 1839. In 1874 a separate province of Assam under a Chief Commissioner was created, with Shillong as capital.

On the partition of Bengal in 1905, Assam was united to the eastern districts of Bengal under a Lt. Governor. From 1912 the Chief Commissionership of Assam was revived, and in 1921 a Governorship was created.

On the partition of India almost the whole of the predominantly Muslim district of Sylhet was merged with East Bengal (present Bangladesh). Dewanagiri in North Kamarupa was ceded to Bhutan in 1951.

Assam lost a good deal of its former territory, as a result of political changes, from time to time.

In 1948, the North East Frontier Agency was



separated from Assam, for security reasons. In 1963, Nagaland was carved out of Assam as a full-fledged state. On 21st Jan. 1972, Meghalaya was cut out of Assam, as a separate state and Mizoram became a Union Territory.

Administration: The Legislature consists of only one house—the Legislative Assembly. The state is divided into 18 districts.

Districts

	Area in sq km	Headquarters
Barpeta	3,307.3	Barpeta
Cachar	5,102.2	Silchar
Darrang	3,465.3	Mangaldoi
Dhubri	2,745.5	Dhubri
Dibrugarh	7,023.9	Dibrugarh
Goalpara	2,843.8	Goalpara
Jorhat	6,400.0	Jorhat
Kamrup	6,601.4	Guwahati
Karbi Anglog	10,332.0	Diphu
Karimganj	1,839.0	Karimganj
Kokrajhar	4,716.5	Kokrajhar
Lakhimpur	5,646.4	Lakhimpur
Nagaon	5,561.0	Nagaon
North Cachar Hills	4,890.0	Haflong
Nalbari	2,022.8	Nalbari
Pragiotishpur	47.3	Pragjotishpur
Sibsagar	2,602.9	Sibsagar
Sonitpur	5,225.2	Tezpur

Nalbari District was inaugurated on 14th August, 1985

State of Economy: Assam is rich in mineral wealth. It holds a unique position in the production of mineral oil. Other minerals found in the state are coal, limestone, refractory clay, dolomite and natural gas.

Of the agri[illegible] occupies an i[illegible]

750 tea plantations in the state. Petroleum and petroleum products amount to a large share of the country's total output of petroleum and natural gas. The state has two oil refineries and the 3rd with a Petrochemical Complex is under way. There is also a public sector izer factory at Namrup. Other industries ugar, jute, silk, paper, plywood, rice and nilling. Important cottage industries are lloom, sericulture, manufacture of cane bamboo articles, carpentry, smithy and ufacture of brass utensils. An export nted handloom project has been started at kuchi to exploit the export potentialities ri and Muga.

rist Centres: *Tourism is only of recent* origin. The Government of India has approved the following two travel circuits in the state: 1. Guwahati-Kaziranga-Sibsagar. 2. Gauwahati-Manas.

The State Government has also, submitted a proposal for additional circuits: 1. Guwahati-Bhairabkunda-Orang-Bhaluking-Tezpur, 2. Guwahati-Diphu-Haflong-Silchar.

These circuits may be linked with Arun achal, Meghalaya, Manipur and Mizoram and will thus help the integrated development of tourism in the north-eastern region.

Governor: Bhishma Narayan Singh. **Chief Minister:** Prafulla Kumar Mahanta (Asom Gana Parishad).

IHAR

a: 173,877 sq km; **Capital:** Patna; **Popula-** **n:** 6,99,14,734; **Languge:** Hindi; **Literacy:** 0%.

ne name 'Bihar' is a corrupt form of ara' which means a Budhist monastery. ar, squeezed in between West Bengal, sa, MP and UP, reaches up to the Hima- s in the north and is completely landlock- Bihar is bounded on the north by Nepal, the south by Orissa, on the east by W. gal and on the west by MP and UP.

rsiography: Stretching from the Hima- n foothills in the north to Orissa in the th, Bihar suffers all the vicissitudes of nging seasons. It gets the worst of the cold the worst of the heat and plenty of floods the bargain.

he most striking geographical feature of ar is the sharp- division between north and th. The northern portion is almost entirely vel tract, while the southern region is ded and hilly. North Bihar is an extremely le strip of land, the land being watered by rivers Sarayu, Gandak and Ganga.

outhern Bihar, especially in and around districts of Chota Nagpur and Santhal anas, is thickly wooded and consists of a ession of hills. The elevation varies from to 1300 m, the highest peak being 1372 m

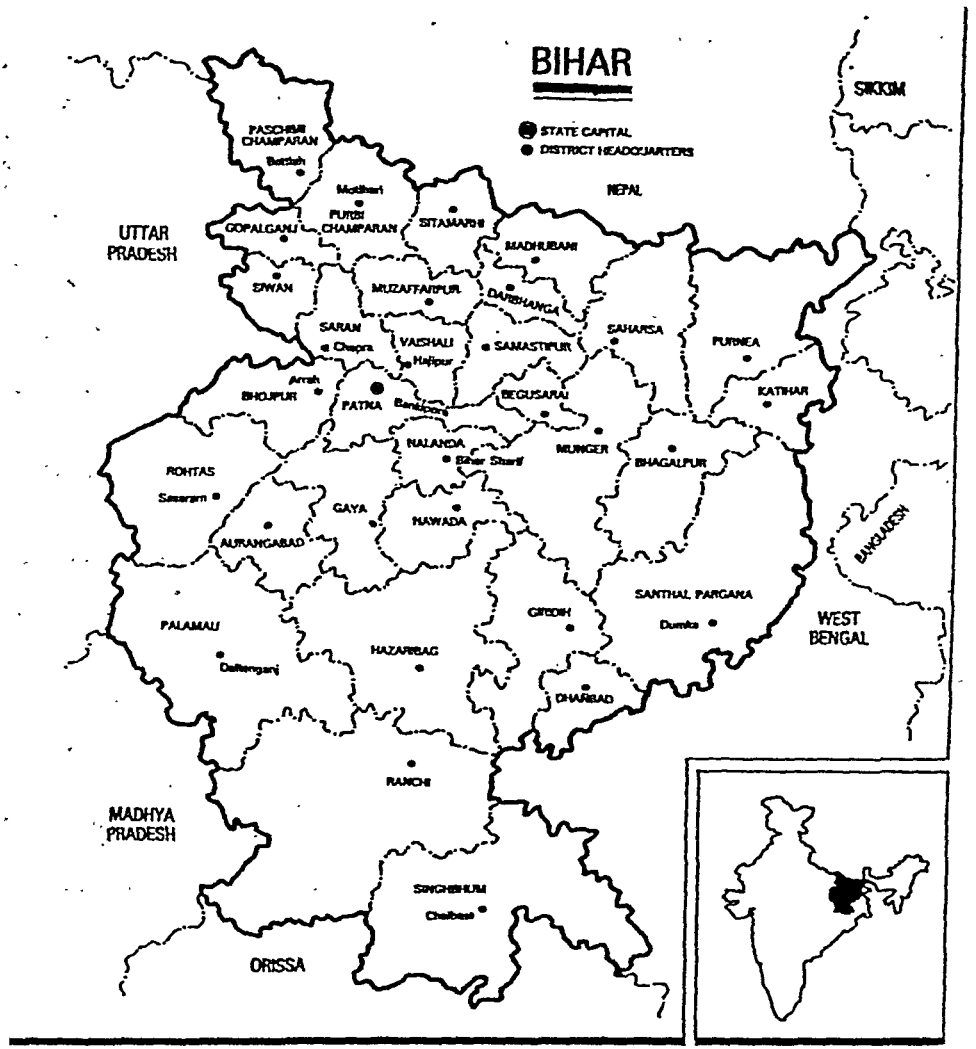
ory: Bihar has a very ancient glorious and ...urful history. Bihar was the home state of the Mauryan emperors. Under Asoka the Great, Magadha and its capital Pataliputra became famous all over the world. With the death of Asoka, its fortunes declined. However, under the Gupta emperors it regained its lost glories. Under the Sultans of Delhi, and later under the Moghul emperors, Bihar was reduced to the status of a province, whose only importance was that it lay on the route from Bengal to Delhi.

When Sher Shah, a Behari himself, drove out Humayun and occupied the throne of Delhi, Bihar once again shot into lime-light. Sher Shah founded the city of Patna, on the site of the ancient capital Pataliputra and gave the country an efficient administration. Bihar enjoyed a period of peace and stablility under Akbar the Great and later Moghuls.

With the decline of the Moghul empire, Bihar passed into the hands of the Nawabs of Bengal. The British wrested the country from the Nawab of Bengal, by the decisive battle at Buxar in Bihar (1764). Under the British Bihar was first a part of the Bengal Presidency. In 1911, Bihar along with Orissa, was separated from the Persidency of Bengal. In 1936, Bihar and Orissa became separate provinces.

Administration: Bihar is one of the medium-sized states of India being the ninth in area. But in population it is the second biggest State in India, next only to Uttar Pradesh.

The Legislature consists of two houses-the Legislative Assembly and the Legislative Council. The state is divided in to 39 districts.



Districts

District	Area in sq km	Population	Head Quarters
na	3,202.0	3,019,201	Patna
inda	2,367.0	1,641,325	Biharsharif
ada	2,494.0	1,099,177	Nawada
a	6,545.0	3,134,175	Gaya
ngahad	3,305.0	1,237,072	Aurangabad
as	7,213.0	2,366,325	Sasaram
ipur	4,098.0	2,407,600	Arrah
n	2,641.0	2,084,322	Chapra
Siwan	2,219.0	1,778,930	Siwan
Gopalganj	2,033.0	1,362,123	Gopalganj
Paschim Champaran	5,228.0	1,972,610	Bettiah
Purab Champaran	3,968.0	2,425,501	Motihari
Sitamarhi	2,643.0	1,932,147	Sitamarhi
Muzaffarpur	3,172.0	2,357,398	Muzaffarpur
Vaishali	2,036.0	1,662,527	Hajipur
Begusarai	1,918.0	1,456,343	Begusarai
Samastipur	2,904.0	2,116,876	Samastipur
Darbhanga	2,279.0	2,008,193	Darbhanga
Mu			

Saharsa	4,071.8	1,989,770	Saharsa
Madhepura	1,788.5	964,033	Madhepura
Purnia	7,943.0	3,595,707	Purnia
Katihar	3,057.0	1,428,622	Katihar
Monghyr	6,398.7	2,546,774	Monghyr
Khagaria	1,485.8	768,653	Khagaria
Bhagalpur	5,589.0	2,621,427	Bhagalpur
Santhal Pargana	5,518.3	1,215,542	Dumka
Deoghar	2,478.6	7,08,828	Deoghar
Godda	2,110.4	7,13,405	Godda
Sahebganj	3,405.4	1,079,753	Sahebganj
Dhanbad	2,996 0	2,115,010	Dhanabad
Giridih	6,892.0	1,731,462	Giridih
Hazaribagh	11,165 0	2,198,310	Hazaribagh
Palamu	12,749.0	1,917,528	Daltonganj
Ranchi	7,574.1	1,823,415	Ranchi
Gumla	9,077.1	1,017,231	Gumla
Lohardaga	1,490.9	2,29,786	Lohardaga
Singhbhum	13,440.0	28,61,799	Chaibasa
Jahanabad	1569.30	9,83,667	Jahanabad

State of Economy: Bihar is ideally suited for agriculture. It has 115 lakh hectares cultivated land out of a total of 174 lakh ha. Presently only 85 lakh hectare land is being cultivated. The principal foodgrain crops are rice, wheat, maize and pulses. Main cash crops are sugarcane, oilseeds, tobacco, jute and potato. Forest covers about 19 per cent of the total area. Important forest products are timber, kendu leaves, lac, gum, sal seed, etc. Bihar Forest Development Corporation collects seeds like Mahua, Karanj and Kusum.

In minerals Bihar is the richest state in India, accounting for nearly 40% of India's total production. Industries based on iron ore, coal, etc. are spread out around Jamshedpur, Bokaro, etc.

The Bihar State Industrial Developr Corporation's new coming projects Sponge Iron at Chandi, G.I. Sheets at Ja Nylon in Bhojpur, Solvent extraction pla Latehar, Watch factory at Ranchi, Cement I at Patratu, Transmission Tower at Jasidhi, F Fasteners at Gaya, etc. During 1985-86 1(small scale industrial units have been istered.

Tourist Centres: Places of tourist interes Rajigir, Bodh Gaya, Jamshedpur, Bol Nalanda, Patna, Ranchi, Sasaram, Vais Hazaribagh, Betla, Bhimbandh, etc. E Gaya, near Gaya in Bihar, is a Budhdhist ce of pilgrimage. It contains the famous an temple near the Bodhi Tree under w Buddha got enlightenment.

Jamshedpur and Bokaro are steel to

Nalanda was one of the great seat learning in ancient India and contains ruins of many Buddhist temples and m teries.

Patna, capital of Bihar, stands on the si the ancient city of Pataliputra.

Sasaram is famous on account of the nificent tomb of Sher Shah Suri, Emper Delhi.

Hazaribagh and Betla have national p and wild life sanctuaries. Vaishali was the of ancient Lichavi Republic.

Governor: P. Venkata Subbaiah. C
Minister: Bindeshwari Dubey (Congres

GOA

(See special feature: Goa: The Youngest State)

GUJARAT

Area: 1,95,984 sq km. **Capital:** Gandhinagar. **Population:** 3,40,86,000. **Language:** Gujarati **Literacy:** 43.70%.

Gujarat, lying in the north-west corner of India, is the tenth in point of population (1981). It is bounded on the north-west by Pakistan, on the north by Rajasthan, on the east by MP and on the south and south-east by Maharashtra.

Physiography: The State of Gujarat... the northern extremity of the western board of India. The state comprises t geographical regions. (1) The peninsula, t tionally known as Saurashtra. It is essenti hilly tract sprinkled with low mountains Kutch on the north-east is barren and r and contains the famous Ranns (deser Kutch, the big Rann in the north and the Rann in the east. (3) The mainland exten

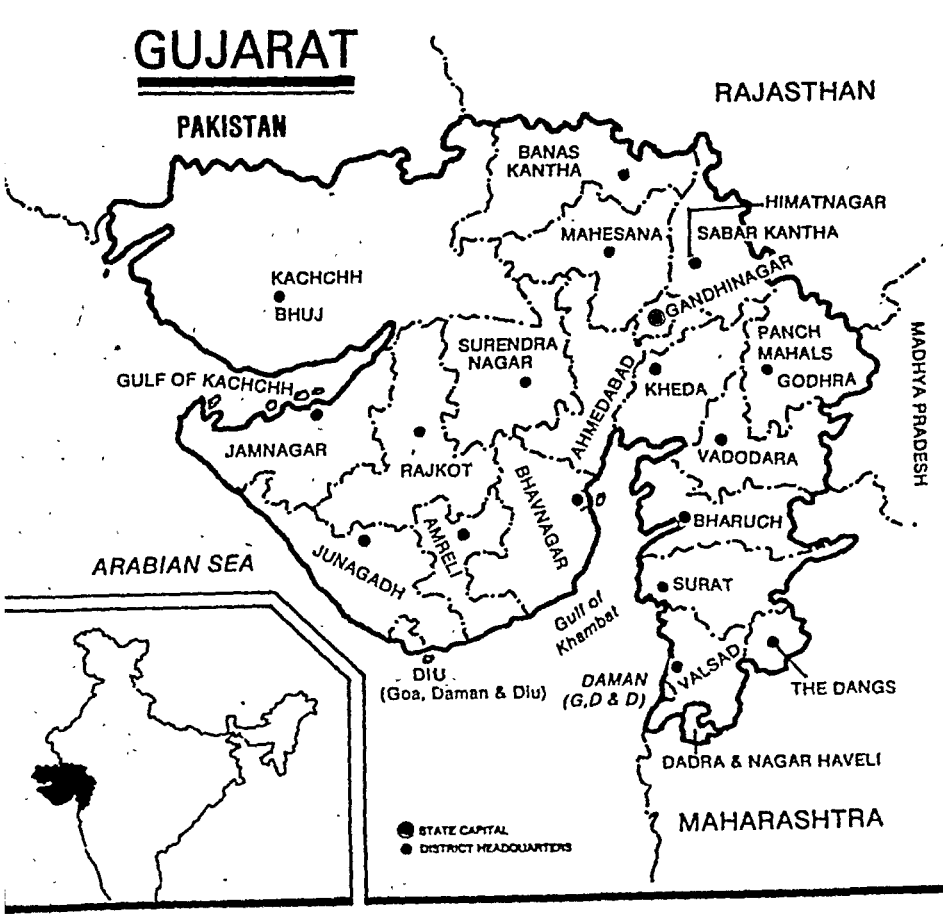
) the river Damanganga is on the whole a vel plain of alluvial soil.

The plains of Gujarat are watered by big vers like Sabarmati, Mahi, Narmada, and apti and by smaller rivers like Banas, Sarasathi and Damanganga. The rainfall in the ate, except in the arid zones of Surendranar and north Gujarat, varies between 65 and 27 cm.

As the Tropic of Cancer passes through the orthern border of Gujarat, the state has an ntensely hot or cold climate. But the Arabian ea and the Gulf of Cambay in the west and the orest-covered hills in the east soften the gours of climatic extremes.

History: On May 1, 1960, as a result of the Bombay Reorganization Act, 1960, the State of Gujarat was formed from the north and west (predominantly Gujarati speaking) portion of Bombay State, the remainder being renamed the State of Maharashtra. Gujarat consists of the following districts of the former State of Bombay: Banas Kantha, Mehsana, Sabar Kantha, Ahmedabad, Kaira, Pancha Mahals, Vadodara, Bharuch, Surat, Dangs, Amreli, Surendranagar, Rajkot, Jamnagar, Junagadh, Bhavnagar, Kachchh, Gandhinagar and Bulsar.

Administration. Gujarat has a unicameral legislature, the Legislative Assembly, which has 182 elected members. The state is divided



into 19 districts.

Districts

District	Area (sq km)	Population	Head quarters
Ahmedabad	8,707	38,75,794	Ahmedabad
Amreli	6,760	10,79,097	Amreli
Banaskantha	12,703	16,67,914	Palanpur
Bharuch	9,038	12,96,451	Bharuch
Bhavnagar	11,155	18,79,340	Bhavnagar
Gandhinagar	649	2,89,088	Gandhinagar
Jamnagar	14,125	13,93,076	Jamnagar
Junagadh	10,607	21,00,709	Junagadh
Kheda	7,194	30,15,027	Kheda
Kachchh	45,652	10,50,161	Bhuj
Mahesana	9,027	25,48,787	Mahesana
Panchmahals	8,866	23,21,689	Godhra
Rajkot	11,203	20,93,094	Rajkot
Sabarkantha	7,390	15,02,284	Himatnagar
Surat	7,657	24,93,211	Surat
Surendranagar	10,489	10,34,185	Surendranagar
Dangs	1,764	1,13,664	Ahwa
Vadodara	7,794	25,58,092	Vadodara
Valsad	5,244	14,74,136	Valsad

State of Economy: Gujarat ranks the first in the country in the production of cotton and groundnut and second in the production of tobacco.

Cotton and groundnut have found good markets and provide a foundation for important industries like textiles, oil and soap. Other important cash crops are isabgul, cumin, sugarcane, mangoes and bananas. The chief food crops of the state are paddy, wheat and bajra. Jowar and maize are produced in local areas.

In 1984-85 production of cotton was 20.69 lakh bales, groundnut 20.61 lakh tonnes and foodgrains 5.66 lakh tonnes. Gujarat has 19.66 lakh hectares of land under forest.

Gujarat has a dominant textile industry. New industries, which are coming up, are chemicals, petrochemicals, fertilizers, drugs and pharmaceuticals, dye-stuffs and engineering units of multiple types.

The state is a major producer of inorga chemicals such as soda-ash and caustic soda well as chemical fertilizers. It has the larg petro-chemical complex in the country.

The dairy industry has made tremend advance and the state accounts for nearly percent of infant milk produced in country.

Exploration and production of oil natural gas in Ankleshwar, Cambay and K and oil refinery at Koyali are other indust achievements. Near Bharuch Gujarat Narm Valley Fertilizer Company has achieved gr success. Ankleshwar industrial estate is hu ming with a number of industries. On coastal areas of Saurashtra ship-breaking ya have taken shape at Alang and Sacha Jamnagar, Porbander, Jafrabad, Bhavnagar, are busy with new industries, trade business.

Gujarat is a major salt producing state its production forms as much as 60 per cen the country's output.

Gujarat has now more than 70,000 sm scale units and 13,000 factories including 1 textile factories. There are about 167 Indust Estates in the State.

Tourist Centres: Gujarat has 4 national pa and 11 sanctuaries. The game sanctuary at the sacred temples of Dwaraka and Soman Palitana, the picturesque mountain city of Temples on about 2000 feet high Shetrun hills, Udwada, the oldest place of the temple of Parsees in India, the 5000-year- archaeological finds at Lothal, the 11th cent Sun Temples at Modhera, bird sanctuary at Sarovar, architectural monuments of In Saracenic style at Ahmedabad and ot places, the national shrine of Mahatma Gan at Sabarmati Ashram,Ahmedabad, Saput hills in South Gujarat are just a few of varied attractions in the state.

Governor: Ram Krishna Trivedi. **Ch Minister:** Amarsinh Chaudhary (Congres

HARYANA

Area: 44,212 sq km; **Capital:** Chandigarh; **Population:** 12,922,618; **Language:** Hindi; **Literacy:** 36.14%.

The State is bounded by UP in the east, Punjab in the west, Himachal Pradesh in t north and Rajasthan in the south. The Uni Territory of Delhi juts into Haryana and encompassed by it on three sides.

Physiography. Haryana can be divided into two natural areas, Sub-Himalayan terai and the Indo-Gangetic plain. The plain is fertile and slopes from north to south with a height above the sea level averaging between 700 and 900 ft. The south west of Haryana is dry, sandy and barren. Haryana has no perennial rivers like its parent state Punjab or its eastern neighbour UP. In this respect, it has more affinity to its southern neighbour, Rajasthan. The only river which flows through Haryana is the Ghaggar, which passes through the northern fringes of the state. This river identified by some historians as the river Drishavaditi of Vedic fame is not perennial. Rainfall is meagre, particularly in the districts of Mahendragarh and Hissar.

For most of the year, the climate of Haryana is of a pronounced character, very hot in summer and markedly cold in winter. The maximum termperature is recorded in the months of May and June when it goes upto as high as 46 degrees C. The temperature falls to the lowest in January.

There are two well-marked seasons of rainfall in the State: (i) the monsoon period failing from the middle of June till September on which autumn crops and spring sowing depend, and (ii) the winter rains which occur from December to February. The Dec.-Feb. rains, though often insignificant in quantity, yet materially affect the prosperity of the spring harvest.

History: Haryana has a proud history going back to the Vedic age. The state was the home of the legendary Bharata dynasty, which has given the name Bharat to India. Haryana is immortalised in the great epic *Mahabharata*. Kurukshetra, the scene of the epic battle between the Kauravas and the Pandavas, is situated in Haryana. The state continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the imperial capital of India. Thereafter, Haryana has functioned as an adjunct to Delhi and practically remained anonymous till the first war of Indian independence in 1857 when the people of Haryana joined the leaders of the Indian revolt against the British Government.

When the rebellion was crushed and the British administration was reestablished, the Nawabs of Jhajjar and Bahdurgarh, the Raja of Ballabhgarh and Rao Tula Ram of Rewari of the Haryana region were deprived of their territories. Their territories were either merged with the British territories or handed over to the rulers of Patiala, Nabha and Jind. Haryana thus became a part of the Punjab province.

The modern State of Haryana came into being on November 1, 1966 as a result of the re-organization of the old Punjab State into two separate states. It was formed as a linguistic state, on the pattern of other states in India, the Hindi-speaking areas of Punjab having been assigned to it.

Administration: The legislature consists of only one house—the Legislative Assembly. There are 90 members in the Legislative Assembly (Vidhan Sabha).

The state is divided into 12 districts.

Districts

District	Area sq km	Population	Head-quarters
Ambala	3832	1409463	Ambala
Kurukshetra	3740	1130026	Kurukshetra
Karnal	3721	1322826	Karnal
Jind	3306	938074	Jind
Sonepat	2206	846765	Sonepat
Rohtak	3841	1341953	Rohtak
Faridabad	2150	1000859	Faridabad
Gurgaon	2716	849598	Gurgaon
Mahendragarh	3010	959400	Narnaul
Bhiwani	5099	920052	Bhiwani
Hissar	6315	1496534	Hissar
Sirsa	4276	707068	Sirsa

State of Economy: Agricultural development in Haryana has been tremendous since independence. The production of foodgrains, sugarcane (gur), oilseeds and cotton rose from 25.92 lakh tonnes, 5.10 lakh tonnes, 0.92 lakh tonnes and 3.05 lakh bales of 170 kg each in 1966-67 to 66.59 lakh tonnes, 6 lakh tonnes, 1.50 lakh tonnes and 5.50 lakh bales of 170 kg each respectively in 1982-83. Fertilizer consumption increased from 0.13 tonnes in 1966-67 to 2.72 lakh tonnes in 1982-83.

Haryana was the first state to introduce crop insurance scheme in north India. Dairy industry is also highly developed.

The major industries are cement, sugar, paper, cotton, textiles, glassware, brassware, cycles, tractors, motor cycles, time-pieces, automobile tyres and tubes, sanitaryware, television sets, steel tubes, hand tools, cotton yarn, refrigerators, vanaspati, [illegible] canvas shoes. A factory of the Hin[illegible]ine

Tools producing tractors is located at Pinjore.

In all, in Haryana there are at present more than 42,000 small scale industrial units as well as 308 large and medium scale units. Exports rose to Rs. 150 crore in 1982-83.

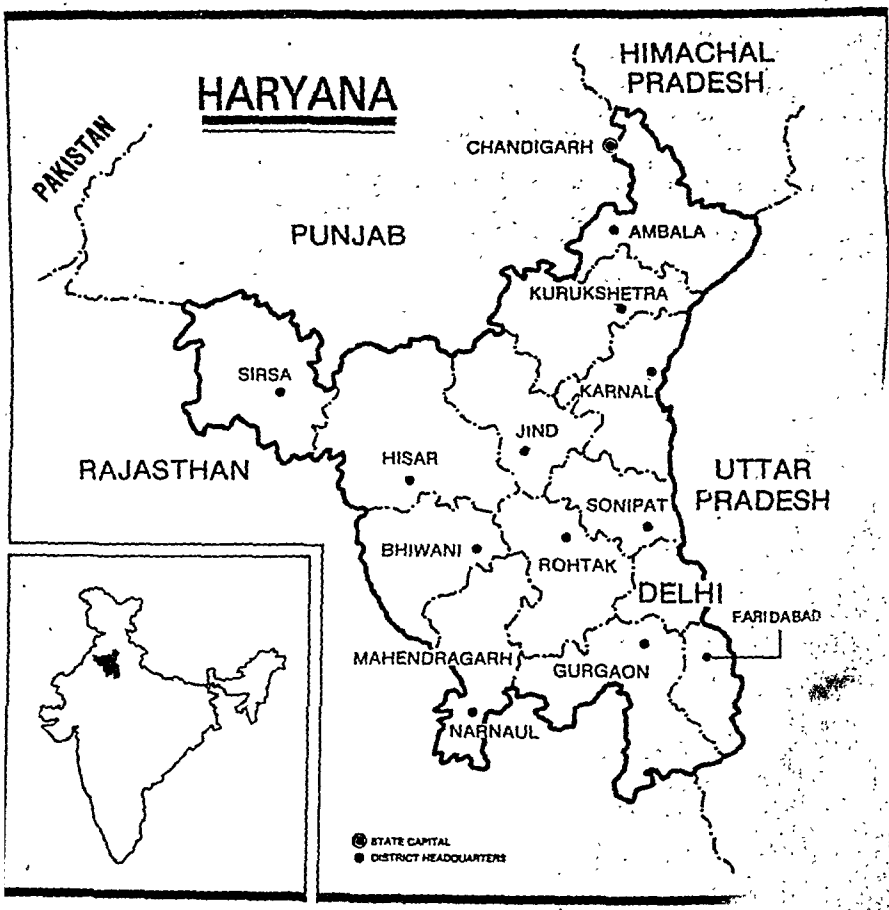
Tourist Centres. Raj Hans, Badkhal Lake, Surajkund, Dabchik, Sultanpur, Barbet, Sohna and Pinjore. Haryana has a network of 32 tourist complexes.

The Golden Triangle of India—Delhi-Agra-Jaipur, and other places of tourist interest in the north viz. the Kashmir Valley, Simla, Amritsar, Chandigarh and Bhakra-Nangal Dam hold great charm for potential tourists, both foreign and home. Haryana girdles Delhi from three sides with all the national highways to these tourist centres running through it.

'Hotel Raj Hans' stands above Surajkund and overlooks the Peacock Lake and bestows its comforts to foreign and domestic tourists coming to Delhi or Haryana.

Haryana Tourism has repeatedly won awards from the Pacific Area Travel Association and the Travel Agents Association of India.

Governor: S. M. H. Burney. **Chief Minister:** Devi Lal [Lok Dal (B)].



HIMACHAL PRADESH

Area: 55,673 sq km; **Capital:** Shimla; **Population:** 4,280,818; **Language:** Hindi and Pahari; **Literacy:** 43%.

Himachal Pradesh became a fullfledged state of the Indian Union on January 25, 1971. With an area of 55,673 sq km it is larger than Punjab, Haryana or Kerala, but in population it stands much below. Historically, the 18th state in the Union, Himachal Pradesh is also the 18th in population (1981 census) but the 14th in area.

Physiography: Himachal Pradesh is situated in the north west corner of India, right in the lap of the Himalayan ranges. It is surrounded by Jammu and Kashmir in the north, Uttar Pradesh in the south east, Haryana in the south and Punjab in the west. In the east, it forms India's boundary with Tibet.

The state is almost entirely mountainous with altitudes ranging from 460 to 6600 metres above sea level. It has a deeply dissected topography, a complex geological structure and a rich temperate flora in sub-tropical latitudes.

Physiographically, the state can be divided into two regions, southern and northern. The southern part of Himachal Pradesh is almost as hot as the plains, while the northern region has a temperate summer and a winter with extreme cold and heavy snowfall. The districts of Shimla and Sirmaur have alluvial soil, while the remaining ten districts have forest and hill soils. The normal rainfall of Himachal Pradesh is 181.6 cm. Maximum rainfall is noticed at Dharmasala in Kangra district.

Himachal Pradesh is drained by a number of rivers, the most important of which are Chenab, Ravi, Beas, Sutlej and Yamuna. All these rivers are snow-fed and hence perennial. Besides, the natural reservoirs and the large drops available in the river courses provide immense potential for hydel power generation at low cost.

History: Himachal Pradesh was originally formed as a centrally-administered territory on April 15, 1948 by the integration of some thirty and odd Punjab hill states. In 1951, it became a 'Part C' state Under a Lt. Governor, with a Legislative Assembly of 36 members and a Cabinet of three ministers. In 1954, Bilaspur, another 'Part C' state was merged with Himachal Pradesh and the strength of the Assembly was raised to 41 members.

In 1956, the States Re-organization Commission recommended the merger of Himachal Pradesh with Punjab. But the people of Himachal Pradesh so stoutly opposed the merger that it was not put into effect.

Till October, 1966 Himachal Pradesh consisted of only six hill districts—Mahasu, Mandi, Chamba, Sirmaur, Bilaspur and Kinnaur. In November, 1966, it was enlarged by the addition of some of the hilly areas of Punjab—Shimla, Kangra, Kulu, Lahaul and Spiti districts and the Nalagarh tehsil of Ambala district and areas of Hoshiarpur and Gurdaspur districts.

Himachal Pradesh was re-organized into 10 districts and declared a state on January 25, 1971 with Shimla as its capital. In 1972-73, the districts were reshuffled bringing up their number to 12.

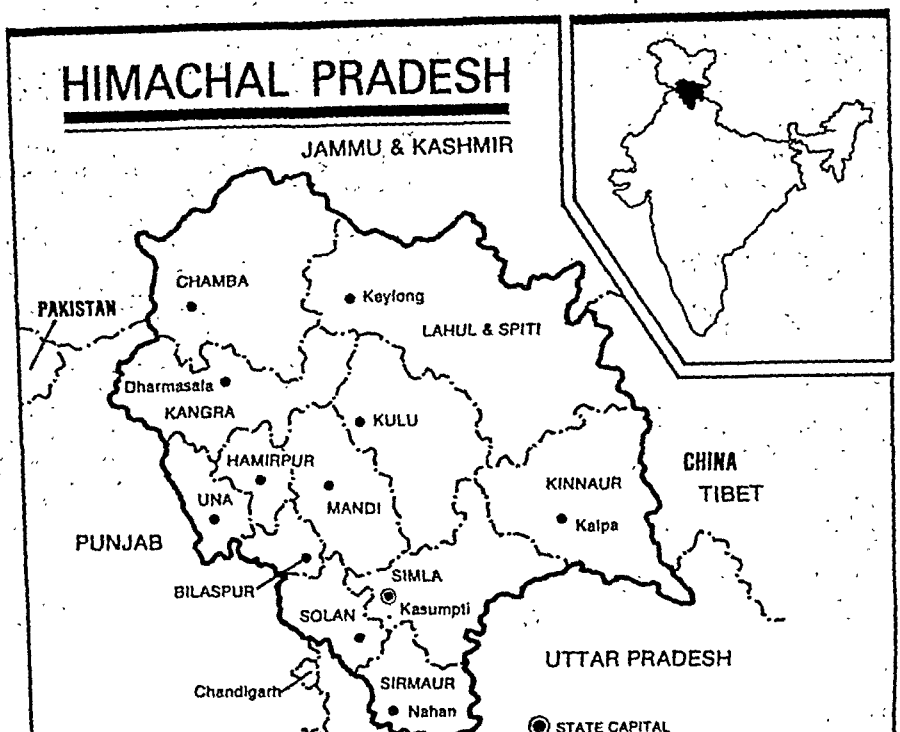
Administration: There is only one house of legislature, i.e., Vidhan Sabha, with 68 members.

The state is divided into the following 12 districts.

Districts

District	Area (sq km)	Population 1981	Density per (sq km)
Bilaspur	1167	247368	212
Chamba	6528	311147	48
Hamirpur	1118	317751	284
Kangra	5739	990758	173
Kinnaur	6401	59547	9
Kulu	5503	238734	43
Lahaul & Spiti	13835	32100	2
Mandi	3950	644827	163
Shimla	5131	510932	100
Sirmaur	2825	306952	109
Solan	1936	303280	157
Una	1540	317422	206

State of Economy. Agriculture and horticulture are the mainstay of Himachal's economy as 76 per cent of people are engaged in these pursuits. Irrigated area forms 26 per cent of the net area sown. However, the agroclimatic conditions in the state are more suitable for



growing a wide variety of fruits and cash crops like seed potatoes, ginger, vegetable seeds, apples, stone fruits, etc. Wheat, maize and paddy are the major cereal crops under cultivation. The production of food grains during 1984-85 was about 12.9 lakh tonnes as against 7.01 lakh tonnes during 1966-67 when the state was reorganized

The state continues to be industrially backward despite vast natural resources endowment and plentiful availability of cheap hydel power. At the end of 1984-85, there were about 7000 small scale industrial units in organized sector employing about 42,000 persons besides numerous cottage and village industrial units. The commissioning of the most modern and sophisticated fruit processing plant at Parwanoo with a capital outlay of about Rs. 4.00 crore has been a landmark in the history of fruit processing in India.

As a result of various concessions/incentives, the pace of industrialization picked up and 58 medium and large scale projects were approved. Among major and medium industries are Nahan Foundry, Nahan; Resin and Turpentine factories at Nahan and Bilaspur Mohan Meakin Breweries, Solan and United Diamonds Ltd., Parwanoo. District Industries Centres in all the 12 districts are functioning An Electronics Development Corporation has been set up in the state and electronics estates are being set up.

Tourist Centres: Himachal Pradesh is studded with a number of hill stations which are refreshingly cool in summer. They offer to the tourists a quick holiday amidst breath-taking

scenery. Shimla, Dalhousie, Dharmasala, Kulu, Kasauli, Solan, Chail and Kufri are some of the famous hill stations.

Himachal Pradesh abounds in wild life among which are some rare species like musk deer, ibex, thar, Himalayan brown bear and snow leopard among animals and monal, tragopan, kokiash and snowcocks among birds. The rivers offer ideal fishing grounds for trout in Katrain, Rohru and Barot and for masheer in Maryoga, Karganuand and Dedahu.

Governor: Vice Admiral R.K.S. Gandhi (Rtd.) **Chief Minister:** Vir Bhadra Singh (Congress).

JAMMU & KASHMIR

Area: 2,22,236; **Capital:** Srinagar (Summer) Jammu (Winter); **Population:** 5,987,389; **Languages:** Urdu, Kashmiri, Dogri, Ladakhi, etc.; **Literacy:** 26.17%.

Physiography: The state lies in the extreme north of the country and is bounded on the north by China, on the east by Tibet and on the south by Himachal Pradesh, Punjab and Pakistan. The official language is Urdu.

History: The State of Jammu and Kashmir which had earlier been under Hindu rulers and Muslim sultans, became part of the Mughal Empire under Akbar. After a period of Afghan rule from 1756, it was annexed to the Sikh kingdom of the Punjab in 1819. In 1846 Ranjit Singh made over the territory of Jammu to Maharaja Gulab Singh. After the decisive battle of Sabroon in 1846 Kashmir also was made over to Maharaja Gulab Singh under the Treaty of Amritsar. British supremacy was recognized until the Indian Independence Act 1947.

When all the states decided on accession to India or Pakistan, Kashmir asked for stand-still agreements with both. In the meantime, the state became the subject of an armed attack from Pakistan and Maharaja acceded to India on 26th October, 1947 by signing the instruments of accession. India approached the U.N. in January, 1949. Another round of war between the two countries in 1965 was followed by the Tashkent Declaration in January 1966.

Following the liberation movement in the former eastern wing of Pakistan, Pakistan attacked India in December, 1971. It was followed by the Shimla Agreement in July 1972. A new line of control was delineated bilaterally to replace the cease-fire line between the two countries in Jammu and Kashmir.

The Maharaja's son Yuvraj Karan Singh took over as Regent in 1950 and on the ending of hereditary rule (17th October, 1952) was sworn in as a Sadar-i-Riyasat. On his father's death (26th April, 1961) Yuvraj Karan Singh was recognized as Maharaja by the Indian Government. He decided, however, not to use the title.

Administration: The Constitution of the state came into force in part on 17th November, 1956 and fully on 26th January, 1957. The constitution provides for a bicameral Legislature (i) the Legislative Assembly (2) the Legislative Council.

The State comprises 14 districts of which 6 each fall in Jammu and Kashmir provinces and two in Ladakh region.

Districts

District	Area (sq km)	Population	Headquarters
1 Anantnag	3,984	6,56,351	Anantnag
2 Badgam	1,371	3,67,262	Badgam
3 Baramula	4,588	6,70,142	Baramula
4 Doda	11,691	4,25,262	Doda
5 Jammu	3,097	9,43,335	Jammu
6 Kargil	14,036	65,992	Kargil
7 Kathua	2,651	3,69,123	Kathua
8 Kupwara	2,379	3,28,743	Kupwara
9 Ladakh	82,665*	68,330	Leh
10 Pulwama	1,398	4,04,[illegible]	Pulwama
11 Poonch	1,674	2,24,[illegible]	Poonch
12 Rajouri	2,630	3,[illegible]	Rajouri
13 Srinagar	2,228	[illegible]	Srinagar
14 Udhampur	4,550	[illegible]	Udhampur

* includes [illegible] sq km under illegal occupation

State of Economy: Agriculture [illegible] the State's economy. [illegible] cent of the population [illegible] wheat and maize are the [illegible] Rice and jowar are [illegible] Gram is grown in [illegible]

Area imported [illegible]

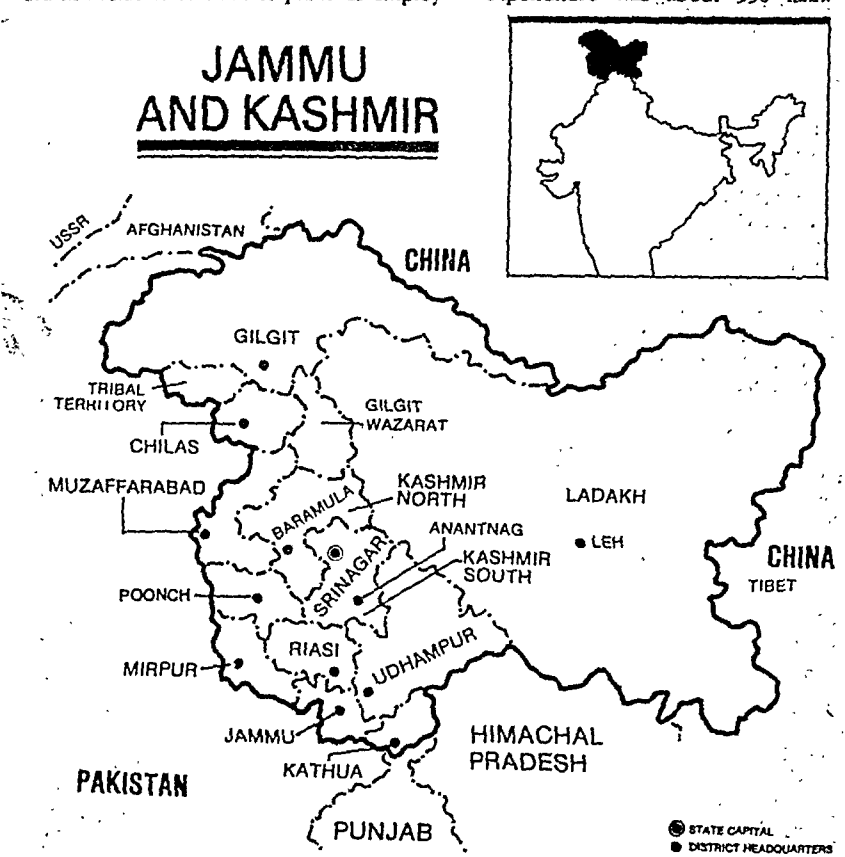
hectares under paddy, 2 lakh hectares under wheat, and about 80,000 hectares under maize. Food grains production is expected to reach 14.43 lakh tonnes in 1986-87 from 12.46 lakh tonnes in 1984-85.

In the small scale sector the number of industrial units registered had crossed the 14921 mark providing employment to about 69,000 people upto the end of March 1984.

The State Government accords high priority to the development of handicrafts and handlooms sectors. Kashmir handicrafts have always been a byword for excellence. The tradition of crafting papier mache, wood carving, carpet and shawl making etc. is very old in Kashmir. This sector provides employment to about 1.7 lakh people. Kashmir handicrafts particularly carpets earn substantial foreign exchange for the country. In 1985-86 Kashmir handicrafts worth Rs. 40.00 crore were exported.

Tourist Centres: Kashmir is the paradise for tourists, both international and domestic. Main centres of attraction are Srinagar, Pahalgam, Gulmarg, Sonamarg, etc. Among places of pilgrim interest are Amarnath and Vaishno Devi.

The tourist industry in the state has registered a phenomenal growth during the past decade. During 1975-76, over Rs. 60 lakh were spent on this sector and in 1984-85 plan expenditure was about 550 lakh. In the



Seventh Plan an outlay of Rs. 2250 lakh has been approved.

Governor: Jagmohan, **Chief Minister:** Farooque Abdulla (National Conference).

KARNATAKA

Area: 1,91,791 sq km; **Capital:** Bangalore; **Population:** 3,71,35,714; **Language:** Kannada; **Literacy:** 38.5%.

Karnataka is the eighth largest state in India both in area and population. It was formerly known as Mysore. On November 1, 1973 the name *Mysore* was changed to *Karnataka* under The Mysore State (Alteration of Name) Act 1973.

The change is much more than a change in nomenclature. It is the revival of a great image of the region which, under the name of Karnataka, had attained glorious heights in history.

Physiography: Karnataka is situated on the western edge of the Deccan plateau and has for its neighbours Maharashtra and Goa on the north, Andhra Pradesh on the east and T.Nadu and Kerala on the south. On the west, it opens out on the Arabian Sea.

Physiographically, the state can be divided into four regions: (1) The Coastal Region, (2) the Malnad, (3) the Northern plains and (4) the Southern plains.

The two important river systems of Karnataka State are the Krishna and its tributaries (Bhima, Ghataprabha, Malaprabha, Tungabhadra and Vedavati) in the north, and the Kaveri and its tributaries (Hemavati, Shimsha, Arkavati, Lakshmana Thirtha and Kabini) in the south.

Both these rivers flow eastward and fall into the Bay of Bengal, the Krishna passing through Andhra Pradesh and the Kaveri traversing Tamil Nadu.

A number of smaller rivers flow westward into the Arabian Sea. Of these Sharavati, Kalinadi and Netravati are important to Karnataka. They are being tapped for hydro-electric power.

As most of these rivers pass through other states notably Andhra Pradesh, Kerala and T.Nadu, there are frequent disputes about water rights between Karnataka and the other states.

History: The name Karnataka is derived from Karunadu, literally, lofty land. As much of Karnataka is high plateau land, the name is entirely justified. The history of Karnataka goes back to the dim days of the epics. The capital of Bali and Sugreeva, 'monkey kings' of the Ramayana, is said to have been Hampi in Bellary district. Vatapi, associated with the Sage Agastya, is obviously Badami in Bijapur district.

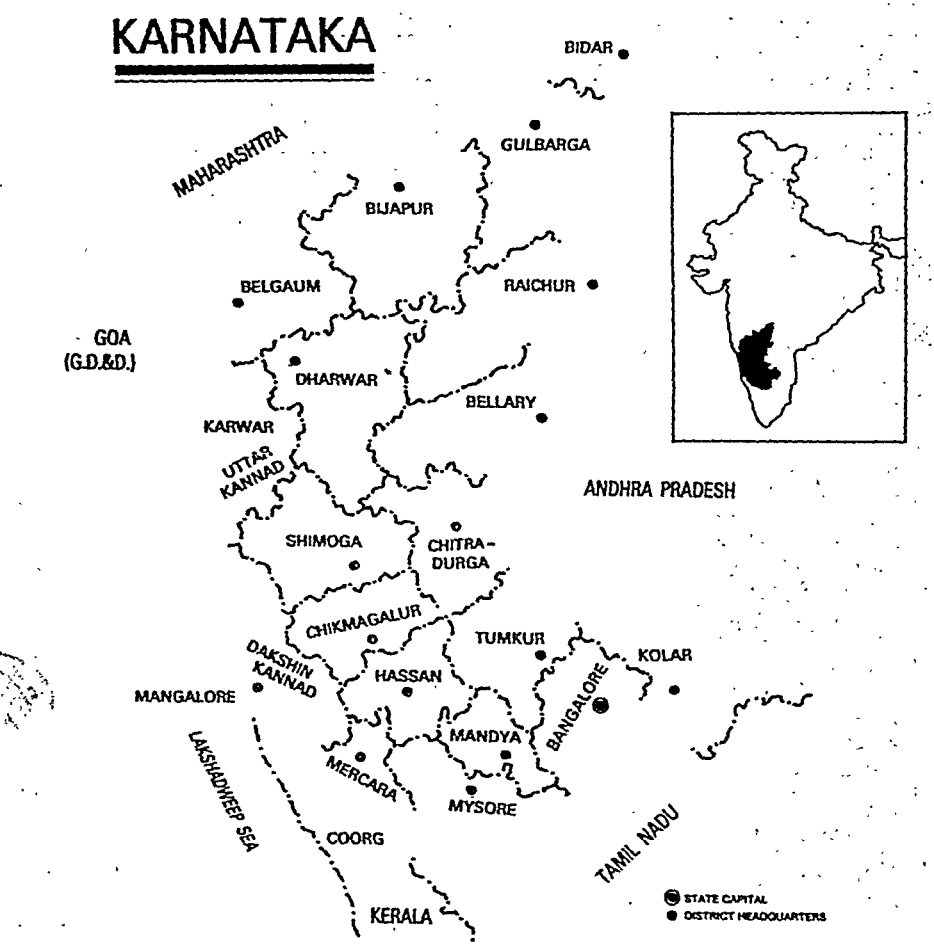
In the 4th century B.C. Karnataka was part of the great Mauryan Empire. Siwamagiri (Kanakagiri in Raichur district) is said to have been the southern capital of the Mauryas. About 30 B.C. a local dynasty, Satavahana, came to power. The Satavahana Empire lasted nearly 300 years. With the disintegration of the Satavahana dynasy, the Kadambas came to power in the north, and the Gangas in the south. The gigantic monolithic statue of Gomateswara at Sravanabelagola is considered to be a monument of the Ganga period.

By the beginning of the sixth century A.D., the Chalukyas established a new empire. After the Chalukyan empire, the Yadavas of Devagiri and the Hoysalas of Dwarasamudra divided Karnataka between them.

In the 14th century, the great Vijayanagar empire was established. It was an age of glory and prosperity. A confederation of the Muslim sultans of the Deccan destroyed the Vijayanagar Empire in 1565 (Battle of Talikota). The vast ruins at Hampi, near Hospet, remain to-day as sombre reminders of Vijayanagar glory.

In 1399 A.D. Yaduraya, the ruler of a small principality, Mysore, founded the Wodeyar dynasty. Raja Wodeyar (A.D. 1578—1612) enlarged the principality into a mighty kingdom, with Srirangapatanam as his capital. The Wodeyars were overthrown by Hyder Ali, the intrepid Muslim general of Mysore. With the defeat of Tippu, the son of Hyder Ali, by the British, the Wodeyars were restored to power as a feudatory of the British.

During British rule, the Karnataka area was distributed among the Princely States of Mysore, Hyderabad, and the British provinces of



Bombay and Madras and the small principality of Coorg.

The formation of the present State represents the fulfilment of the age-old aspirations of Kannada-speaking people to come together in a single state. The old Kingdom of Mysore formed the nucleus of this new state. Under the States Reorganization Act, the Kingdom of Mysore gathered around itself in 1956 the districts of Kanara, Bijapur, Dharwar and the major portion of Belgaum district in the Gulbarga, Raichur and Bidar districts, from the princely State of Hyderabad, the South Kanara district (excluding Kasargod Taluk and Kollegal taluk in Coimbatore district) from the old Madras Presidency and the whole of the 'Part C' State of Coorg.

Administration: The Legislature is made up of two houses, the Legislative Assembly of 224 members and the Legislative Council of 63

members.

The state is divided into 20 districts.

Districts

District	Area in (sq km)	Population	Head quarters
Bangalore	8005	4947610	Bangalore
Bangalore Rural	—	—	Bangalore
Belgaum	13415	2980440	Belgaum
Bellary	9885	1489225	Bellary
Bijapur	17069	2401782	Bijapur
Bidar	5448	995691	Bidar
Chickmagalur	7201	911769	Chickmagalur
Chitradurga	10852	1777499	Chitradurga
Dakshina Kannada	8441	2376724	Mangalore
Dharwad	13738	2945487	Dharwar
Gulbarga	16224	2080643	Gulbarga
Hassan	6814	1357014	Hassan
Kodagu	4102	461888	Madikeri
Kolar	8223	1905492	Kolar
Mandya	4961	1418109	Mandya
Mysore	11954	2595900	Mysore
Raichur	14017	1783822	Raichur
Shimoga	10553	1656731	Shimoga
Tumkur	10598	1977854	Tumkur
Uttara Kannada	10291	1072034	Karwar

State of Economy: Karnataka is predominantly rural and agrarian. About 76 per cent of its population lives in rural areas while about 71 per cent of its working force is engaged in agriculture and allied activities which generate 49 percent of the state income.

Among the food crops, Karnataka accounts for 47 per cent of the country's ragi production. The share of other crops in the country's production is: Jowar—16 per cent, small millets—10 per cent, tur—9 per cent, maize—7 per cent and rice and bajra—5 per cent each.

Among non-food crops, coffee is the most important as it accounts for 59 per cent of the country's coffee production. Other crops are: cardamom, arecanut, safflower, coconut, cotton, groundnut, chillies, castorseed, sugarcane and tobacco.

There are a number of big industries. Machine tools, aircraft, electronic products, watches and telecommunication equipment are some of the items produced. Important Union Government undertakings engaged in the production of these items are Hindustan Aeronautics, Hindustan Machine Tools, Bharat Earth Movers, Bharat Electronics, Indian Telephone Industries and National Aeronautical Laboratory. The state-owned Viswesvaraya Iron & Steel Ltd., Bhadravathi, produces special steel and alloy steel.

Kudremukh Iron Ore Project is another major development project. Karnataka accounts for 85 per cent of the raw silk produced in the country. Apart from silk, its sandal soap and sandal oil are well known in world markets. The third naval base in India with an outlay of Rs. 2000 crores is being set up at Karwar.

Tourist Centres: Garden city of Bangalore has been adjudged the cleanest city in India more than once. A trip from Bangalore to Mysore, the capital of the Wodeyars via Srirangapatnam, the capital of Tippu Sultan, is quite rewarding.

Mysore city is famous for the Dussehra festival during September-October. The famous Krishnaraja Sagar dam and Vrindavan gardens are nearby.

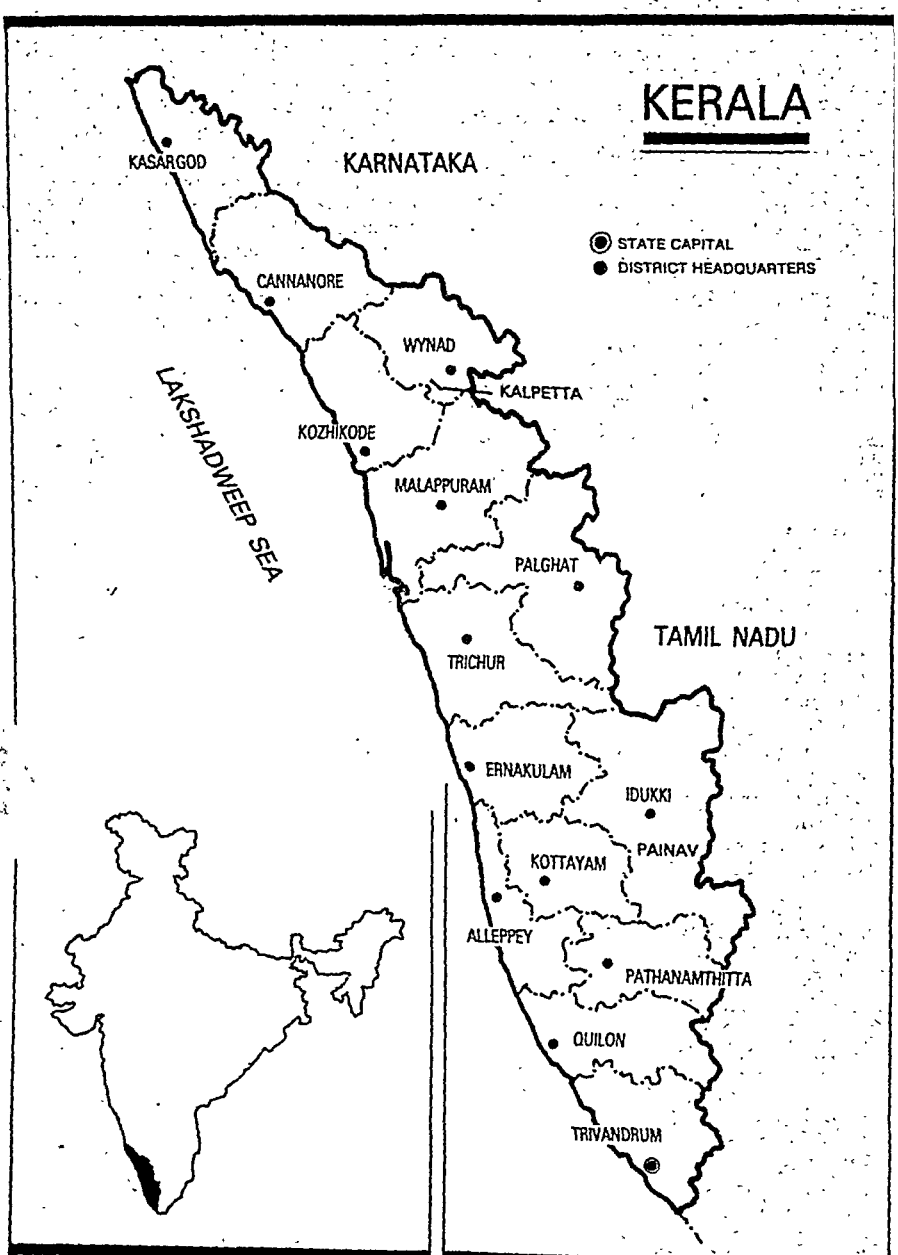
Among the natural parks is Bandipur Wild life Sanctuary, 80 km south of Mysore. Belur, on the bank of river Yagachi, was once the flourishing capital of Hoysala Empire. Sravanabelagola where the 18-metre statue of Gomateswara stands is a Jain pilgrim centre. Jerosoppa (Jog Falls) is—world famous.

Governor: Ashok Nath Banerjee. **Chief Minister:** Rama Krishna Hegde [illegible]

KERALA

Area: 38,863 sq km; **Capital:** Trivandrum; **Population:** 25,453,680; **Language:** Malayalam; **Literacy:** 69.17%.

Kerala is a small state, tucked away in the south west corner of India. It has an area of 38,863 sq km which represents only 1.18 per cent of the total area of India. But it supports a population of 25,453,680 which is 3.71 per cent of the total population of the country (1981). The disproportion [illegible] and population is reflected [illegible] which in 1981 was 655 [illegible] This is the highest [illegible] the Union, higher [illegible] only by four union [illegible] Chandigarh-39[illegible] Amindivi Islands [illegible] and Pondicherry [illegible]


KERALA
KARNATAKA
KASARGOD
CANNANORE
WYNAD
KALPETTA
KOZHIKODE
MALAPPURAM
PALGHAT
TRICHUR
ERNAKULAM
IDUKKI
KOTTAYAM
PAINAV
ALLEPPEY
PATHANAMTHITTA
QUILON
TRIVANDRUM
TAMIL NADU
LAKSHADWEEP SEA
STATE CAPITAL
DISTRICT HEADQUARTERS

Not For The Average But For The Excellence

Dr. U. R. Anantha Murthy

All births are painful, and so, I am told, was the birth of Gandhiji University. I realize now growing up too is a painful and exacting process. Life's mystery lies in the fact that we seek after the pain, which transforms itself into a joy.

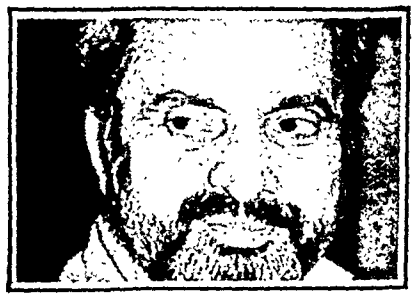
You must be familiar with the expression 'Town' and 'Gown'. In some ancient universities like Oxford, Cambridge *and* Heidelberg *'Gown' is almost the 'Town' and even overwhelms the 'Town.' Such is not the case in Kottayam. Here the 'Town' is kind, very courteous to us and very understanding — but more powerful than us.*

But I am hopeful that it will nurture a warm and generous atmosphere in the university — where the young can grow-up to discriminate the really excellent form the average. For society which doesn't care for the excellence and opts for the safe average has no future. Caring for excellence means hard work — yogo karmasu kaushalam — *and refusal to buckle under the pressure of the average.*

I appeal to the student world with the upanishadic *prayer:* Saha Viryam Karava vahai — *Let the student and the teacher together evolve the truly liberating power of* Jnana. For Jnana *is the fruit of a dialogue between the teacher and the taught.*

So far as education is concerned, Kerala has on the whole reached a level above anything you may find anywhere in India. It is certainly above average. But one should not be satisfied with this achievement because average is also mediocre. The university should aim at great centres of excellence.

The everyday world has its stresses and strains, its immediate imperatives — but a university is a place where you can dream, play with ideas, make projections into the future, withdraw for a while from the pragmatic pressures of life only to face them with renewed vigour and creativity. It is a space that all living cultures create for themselves for their own continuous rejuvenation.



The student's education will continue even after he leaves the university. I must add that it is not merely in the class-room that this is done. It is generally agreed that it is also done in the libraries and in the laboratories. But not merely here — it should continue in the lobbies of the hostels where students live, and cafetarias which they haunt, and the trees under which heavy lounge. It should pervade the whole atmosphere of the university. That is my dream for the campus of my university.

(Excerpt from the speech made on the occasions of opening the new campus for Gandhiji University, Kottayam, where he is presently Vice Chancellor).

Physiography: Kerala may be divided into three geographical regions: (1) Highlands, (2) Midlands and (3) Lowlands. The Highlands slope down from the Western Ghats which rise to an average height of 3000 feet, with a number of peaks well over 6000 feet in height. This is the area of major plantations like tea, coffee, rubber, cardamom and other spices.

The Midlands, lying between the mountains and the Lowlands, is made up of undulating hills and valleys. This is an area of intensive cultivation. Cashew, coconuts, arecanuts, tapioca, bananas, rice, ginger, pepper, sugarcane and vegetables of different varieties are grown in this area.

The Lowlands or the coastal area, which is made up of the river deltas, backwaters and the shore of the Arabian sea, is essentially a land of coconuts and rice. Fisheries and coir industry constitute the major industries of this area.

Kerala is a land of rivers and backwaters. Forty-four rivers (41 west-flowing and 3 east-flowing) cut across Kerala with their innumerable tributaries and branches, but these rivers are comparatively small and being entirely monsoon-fed, practically turn into rivulets in summer, especially in the upper areas.

The backwaters form a specially attractive and economically valuable feature of Kerala. include lakes and ocean inlets which irregularly along the coast. The biggest is the Vembanad lake, some 80 sq in area, which opens out into the Arabian Sea at Cochin port. The Periyar, Pamba, Manimala, Achenkovil, Meenachil and Moovattupuzha rivers drain into this lake. The other important backwaters are Veli, Katinamkulam Anjengo, Edava, Nadayara, Paravoor, Ashtamudi (Quilon), Kayamkulam, Kodungallur (Cranganore) and Chetuva. The deltas of the rivers interlink the backwaters and provide excellent water transportation in the low-lands of Kerala. A navigable canal, 228 miles long, stretches from Trivandrum, the capital of Kerala, to Tirur in the far north.

History: When India became free, Kerala was made up of two princely states, Travancore and Cochin, and Malabar was under the direct administration of the British. One of the first steps taken by independent India was to amalgamate small states together so as to make them viable administrative units.

In pursuance of this policy the Travancore and Cochin states were integrated to form Travancore-Cochin State on Ist July, 1949. But Malabar remained as part of the Madras Province. Under the States Re-organization Act of 1956, Travancore-Cochin State and Malabar were united to form the State of Kerala on Ist November, 1956.

Some territorial adjustments had necessarily to be made on re-organization. In this adjustment, Kerala lost to Madras (now Tamil Nadu) the taluks of Thovala, Agasteeswaram, Kalkulam and Vilavancode in the far south and Shencotta in the east, while it gained the Malabar district and the Kasargod taluk of South Kanara district in the north. The Laccadive, Minicoy and Amindivi islands lying off the coast of Malabar were detached from Kerala and declared as Union Territory.

Administration: The state has a unicameral legislature. The Legislative Assembly has 141 members.

The state is divided into 14 districts.

Districts

Districts	Area	Population	Head-quarters
Trivandrum	2186.00	2,596,112	Trivandrum
Quilon	2687.50	2,192,901	Quilon
Alleppey	1360.58	1,865,580	Alleppey
Pathanam-thitta	2518.98	1,107,658	Pathanam-thitta
Kottayam	2195.50	1,697,442	Kottayam
Idukki	5149.62	969,292	Painav
Ernakulam	2358.19	2,535,294	Ernakulam
Trichur	2993.90	2,439,543	Trichur
Palghat	4389.80	2,044,399	Palghat
Malappuram	3632.30	2,402,701	Malappuram
Kozhikode	2333.30	2,245,265	Kozhikodu
Wyanad	2125.60	554,026	Kalpetta
Cannanore	2968.00	1,930,223	Cannanore
Kasargod	1961.30	872,741	Kasargodu

State of the Economy: Kerala with its high population presents complex problems in the sphere of food, employment and housing. The state is 50 per cent short of food. Owing to historical and climatic reasons the state has developed commercial agriculture more than food crops. Consequently, the state is short of foodgrains, especially rice which is the staple food of the people.

Kerala has a unique cropping pattern. It

Kerala's Seesaw Politics

Nov. 1, 1956: Birth of Kerala.
Mar, 1957: First Assembly Election.
April 5, 1957: E.M.S. ministry (Communist) sworn in.
July 31, 1959: E.M.S. ministry dismissed.
Feb. 1960, Election to the Assembly.
Feb. 22, 1960: Pattom Thanu Pillai ministry sworn in (Congress).
Sept. 25, 1962: (Pattom appointed Governor of Punjab.
Sept. 26, 1962: R. Sankar ministry sworn in (Congress).
Sept. 10, 1964: Sankar ministry goes.
Mar. 1965: Assembly election (infructuous).
Feb. 1967: Election to the Assembly.
March 6, 1967: Second E.M.S. ministry sworn in (Communist).
Oct. 24, 1969: E.M.S. ministry goes.
Nov. 1, 1969: Achutha Menon ministry in (Left United Front).
June 26, 1970: Assembly dissolved.
Aug. 1, 1970: Achutha Menon ministry resigns.
Sept. 1970: Assembly Election.
Oct. 4, 1970: Second Achutha Menon ministry in.
Mar. 1977: Election to the Assembly.
Mar. 25, 1977: Karunakaran ministry sworn in (Congress).
April 25, 1977: Karunakaran resigns.
April 27, 1977: A. K. Antony sworn in Chief Minister (Congress).
Oct. 27, 1978: Antony resigns.
Oct. 29, 1978: P. K. Vasudevan Nair ministry sworn in (Left United Front).
Oct. 7, 1979: Vasudevan Nair goes.
Oct. 11, 1979: C. H. Mohammed Koya ministry sworn in (Right United Front).
Dec. 1, 1979: Mohammed Koya goes.
Jan. 1980: Election to the Assembly.
Jan. 25, 1980: E. K. Nayanar ministry sworn in (Left United Front).
Oct. 20, 1981: Nayanar ministry goes.
Dec. 28, 1981: Karunakaran ministry sworn in (United Democratic Front).
Mar. 17, 1982: Karunakaran ministry resigns.
May 19, 1982: Assembly Election.
May 24, 1982: Karunakaran ministry sworn in (United Democratic Front).
March 23, 1987 Assembly election.
March 26, 1987 E. K. Nayanar Ministry takes over (Left Democratic Front).

accounts for 92 per cent of India's rubber, 70 per cent of cardamom, 70 per cent of coconut, 60 per cent of arecanut, 70 per cent of pepper, 80 per cent of tapioca and almost 100 per cent of lemon grass oil. Kerala is the single largest producer of a lot of other crops like bananas and ginger, besides tea and coffee in abundance.

While the state's economy continued to suffer from the adverse effect of the unprecedented drought of 1982 devastating rains and floods played havoc with her economy in 1985-86 and drought in 1986-87. Both production and productivity of almost all the major crops in the state suffered as a result of natural disturbances, the crops most affected being coconut, cardamom, pepper and coffee.

However, agricultural production went up sharply in 1983-84 and continued to increase modestly in 1985-86.

**Rubber:* Production increased from 162212 tonnes in 1983-84 to 1,84,700 tonnes in 1985-86. Area of cultivation is 3,62,500 hectares. This is 88.24 per cent of India's total of 3,19,900 hectares.

**Coffee:* Coffee plantations in Kerala were devastated by the drought compared to coffee plantations elsewhere in the country where the effects of drought were less severe. In 1984-85 coffee was grown in 65,641 hectares. (Production 35,565 tonnes). This is 35.74% of the total area of coffee cultivation in the country. In 1985-86 the production was 23,640 tonnes only. In 30 years coffee production in the state increased more than seven times. Coffee export from the state in 1985-86 was 16,373 tonnes (Rs. 128.42 crore).

**Tea.* Despite the severe drought and power cut tea production in Kerala improved. In 1984-85 tea was grown in 35021 hectares

(8.84% of India's total). Total production in 1985 was 52,387 tonnes (12.54% of India's total).

**Cardamom.* The production and yield of cardamom were severely affected by the prolonged drought. But in 1985-86 production rose to 3340 tonnes from 1100 tonnes in 1983-84. Total export-earning in 1985-86: Rs. 49.20 crore (90% of India's total).

In the industrial sector, the power cut imposed consequent to drought, continued to affect activities during the last few years. Total Industrial production during 1985-86 was to the tune of Rs. 880.87 crore. There were 11131 registered factories in the state and the total work force in these factories was 292629 in 1985.

Tourist Centres: Under the aegis of the Department of Tourism and Kerala Tourism Development Corporation, many places in Kerala have been developed into tourist centres.

Trivandrum, the capital city had been once the cleanest city in India. It is an abode of temples, mosques and churches. Kovalam Beach Resort is 12 km from there. Neyyar Dam (19 km), Ponmudi (61 km) and Padmanabhapuram Palace (53 km) are other places of interest.

Periyar Wild Sanctuary at Thekkady in Idukki District is another attraction. Sabarimala, abode of Lord Ayyappan, is a famous pilgrim centre in Pathanamthitta Dist.

Cochin is known as the 'Queen of the Arabian Sea'. The beautiful Willingdon Island with the adjoining port is a great attraction. Kalady in Ernakulam District is the birthplace of Sri Sankaracharya. Guruvayur in Trichur Dist. has the famous Lord Krishna shrine. Kalamandalam, the renowned Kathakali Centre is in Trichur Dist. Calicut is historically important as the capital of the Zamorins. Edakal cave in Wyanad district is centuries old.

Governor: P. Ramachandran. **Chief Minister:** E. K. Nayanar (CPM).

MADHYA PRADESH

Area: 443446 sq km; **Capital:** Bhopal; **Population:** 5,21,78,844; **Language:** Hindi; **Literacy:** 27.82%.

Situated in the centre of India and bounded on all sides by other states, Madhya Pradesh (Central Province) is the biggest state in the country.

Physiography: Except for the valleys of the Narmada and the Tapti, M.P. consists of a plateau with a mean elevation of 1600 ft above sea level, interspersed with the mountains of the Vindhya and the Satpura ranges. The main river systems are the Chambal, Betwa, Sindh, Narmada, Tapti, Mahanadi and Indravati.

The average rainfall in the different regions of the state ranges from 30 to 60 inches. The climate is extreme in the north, temperate and breezy in the plateau and generally hot and humid in the eastern and southern plains. Nearly a third of the state's area is covered with tropical forests.

M.P. has the largest population of Scheduled Tribes of all states and a high proportion of Scheduled Castes. Together, they constitute nearly one-third of the population, 23 districts are predominantly tribal. The major tribes of MP are Gonds, Bhils, Oraons, Korkens and Kols. Massive development efforts under tribal sub-plan are going on in these areas. The tribals in the districts mainly depend on the progress of this area.

History: Under the provisions of the States Reorganization Act, 1956, the State of Madhya Pradesh was formed on November 1, 1956. It consists of the 17 Hindi districts of the previous state of that name, the former State of Madhya Bharat (except the Sunel enclave of Mandsaur district), the former Vindhya Pradesh, the State of Bhopal and Sironj subdivision of Kotah district, which was an enclave of Rajasthan in Madhya Pradesh.

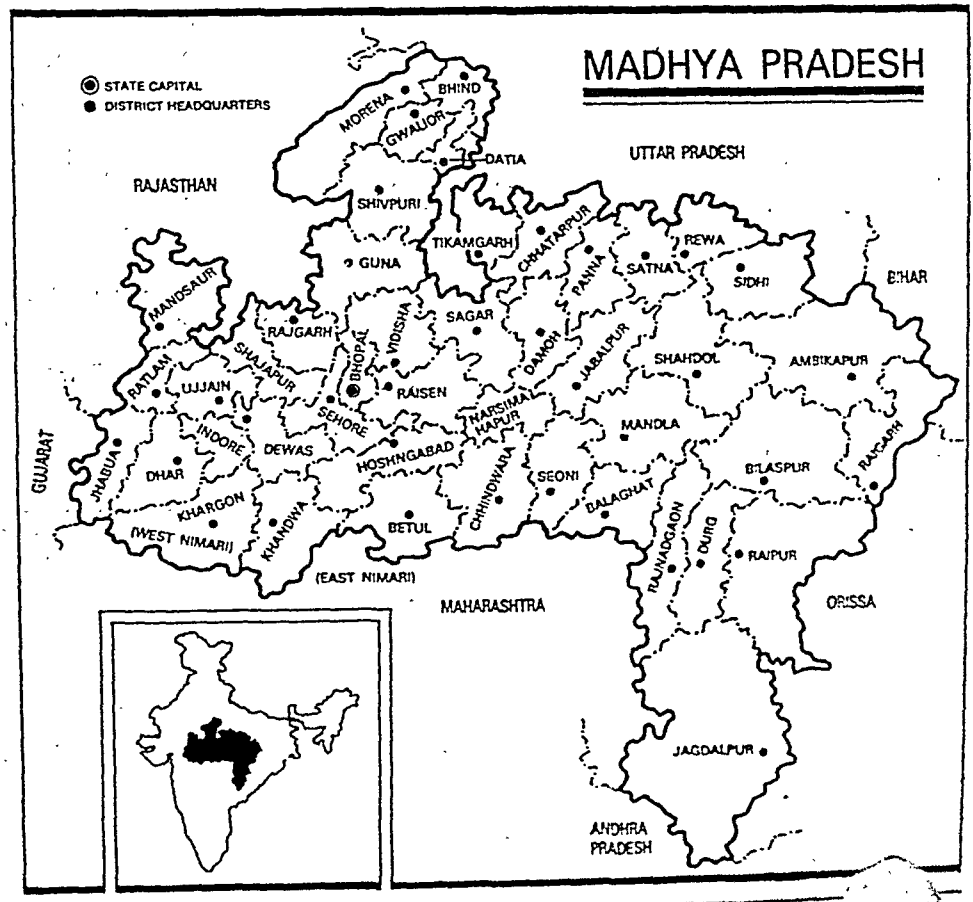
Administration: The Legislature is unicameral with one house—the Legislative Assembly. The state is divided into 45 districts.

Districts

District	Area (sq km)	Population (1981) census)	Headquarters
Balaghat	9229	1147810	Balaghat
Bastar	39114	1842854	Jagdalpur

*Please also see the chapter 'Plantation' under 'India'.

Betul	10043	925387	Betul	Mandsaur	9791	1263399	Mandsaur
Bhind	4459	973816	Bhind	Morena	11594	1303213	Morena
Bhopal	2772	894739	Bhopal	Narsinghpur	5133	650445	Narsinghpur
Bilaspur	19897	2953366	Bilaspur	Panna	7135	539978	Panna
Chhatarpur	8687	886660	Chhatarpur	Raigarh	12924	1443197	Raigarh
Chhindwara	11815	1233131	Chhindwara	Raipur	21258	3079476	Raipur
Damoh	7306	721453	Damoh	Raisen	8466	710542	Raisen
Datia	2038	311893	Datia	Rajgarh	6154	801384	Rajgarh
Dewas	7020	795309	Dewas	Rajnandgaon	11127	1167501	Rajnandgaon
Dhar	8153	1057469	Dhar	Ratlam	4861	782729	Ratlam
Durg	8537	1890467	Durg	Rewa	6134	1207583	Rewa
East Nimar	10779	1153580	Khandwa	Sagar	10252	1323132	Sagar
Guna	11065	1001985	Guna	Satna	7502	1153387	Satna
Gwalior	5214	1107879	Gwalior	Sehore	6578	657381	Sehore
Indore	3898	1409473	Indore	Seoni	8758	809713	Seoni
Hoshangabad	10037	1003939	Hoshangabad	Shahdol	14028	1345125	Shahdol
Jabalpur	10160	2198743	Jabalpur	Shajapur	6196	840247	Shajapur
Jhabua	6782	795168	Jhabua	Shivpuri	10278	865930	Shivpuri
Mandla	12269	1037394	Mandla	Sidhi	10226	990467	Sidhi



Surguja	22337	1633476	Ambikapur
Tikamgarh	5048	736981	Tikamgarh
Ujjain	6091	1117002	Ujjain
Vidisha	7371	783098	Vidisha
West Nimar	13450	1630943	Khargone

State of Economy: The economy of Madhya Pradesh is primarily agriculture-based. Nearly 80 per cent of the population live in villages. Over 52.06 per cent of the land area is cultivable, of which 13.4 per cent is under irrigation. The Malwa region abounds in rich black cotton soil, the low lying areas of Gwalior, Bundelkhand, Baghelkhand and the Chhattisgarh plains have lighter soil, whereas the Narmada valley is formed of deep rich alluvial deposits. The main food crops are jowar, wheat and rice and coarse grains such as kodo, kutki, soma, etc. Important among the commercial crops are oilseeds, cotton and sugarcane. The state is poised for a breakthrough in soyabean cultivation.

M.P. is very rich in natural resources like iron ore, manganese ore, coal, lime stone and tin. The major industries are the steel plant at Bhilai, Bharat Heavy Electricals at Bhopal, the Aluminium Plant at Korba, the Security Paper Mills at Hoshangabad, the Bank Note Press at Dewas, the Newsprint Mill at Nepanagar and Alkaloid Factory at Neemuch, Cement Factories, Vehicle Factory, Ordnance factory and Guncarriage Factory. There are also 23 textile mills, 7 of them nationalized.

The Bhilai Steel Plant near Durg is one of the six major steel mills in India. A power station at Korba (Bilaspur) with a capacity of 420 MW serves Bhilai, the Aluminium Plant and the Korba coalfields.

The Bharat Heavy Electricals was set up by the Government of India at Bhopal during the Second Plan period. This is India's first heavy electrical equipment factory and also one of the largest of its type in Asia. It makes a variety of highly complicated equipments required for generation, transmission, distribution and utilization of electric power.

A large number of agro-based industries have also come up. Large number of solvent extraction plants based on soyabean have been established. Fourteen Industrial Growth Centres are being developed in the state.

Tourist Centres: Khajuraho, once the capital of Chandella rulers is 595 km from Delhi. The embodiment of the great artistic activity of the 9th to the 12th centuries, only 22 temples out of 85 survive.

Ujjain with historic palaces, Sanchi with ancient Buddhist monuments, Bhopal the lake-side capital city, Jabalpur famous for marble rocks and Gwalior with beautiful forts are among the other tourist centres.

Kanha National Park near Jabalpur is one of the most beautiful wild life sanctuaries in India.

Governor: K.M. Chandy; **Chief Minister:** Motilal Vohra.

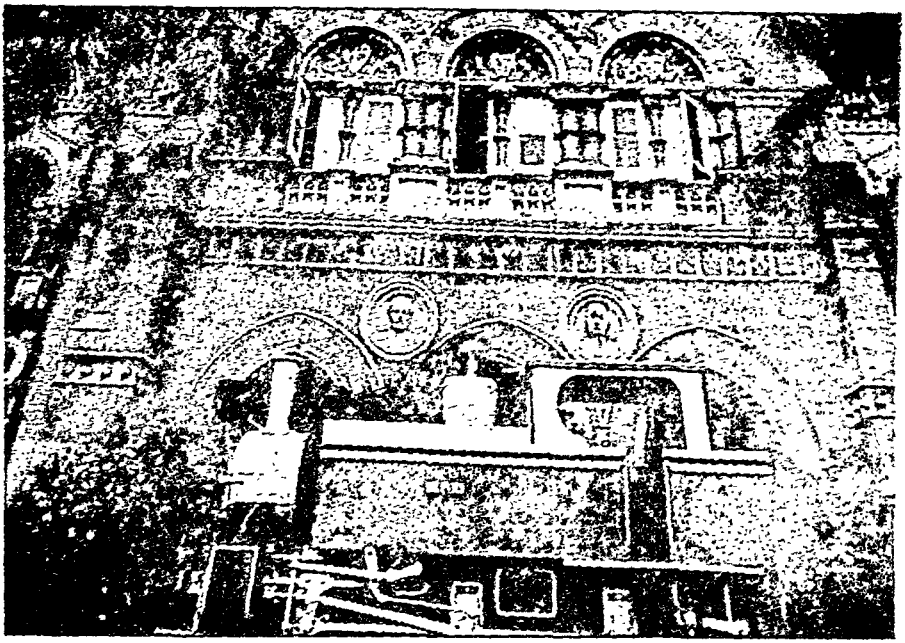
MAHARASHTRA

Area: 3,07,690 sq km; **Capital:** Bombay; **Population:** 6,27,84,171; **Language:** Marathi; **Literacy:** 47.37%.

Maharashtra is the third largest state in India both in area and population. Only Uttar Pradesh and Bihar have larger populations and Madhya Pradesh and Rajasthan have larger areas than Maharashtra. The state is bounded by the Arabian Sea in the west, Gujarat in the north west, MP in the north, AP in the south east and Karnataka and Goa in the south.

Physiography: The State of Maharashtra forms a huge irregular triangle with its base on the west coast of India, overlooking the Arabian Sea. The coastal strip, about 720 km long and not more than 80 km wide, is the Konkan, dotted with paddy fields and coconut gardens. The Sahyadris or the Western Ghats running almost parallel to the sea coast flank the Konkan on its east. To the east of the Sahyadris stretches a vast plateau forming the apex of the triangle.

This plateau is drained by the great rivers Godavari, Bhima and Krishna, which rise in the Sahyadris and flow eastward across the Indian peninsula, into the Bay of Bengal. The plateau is extremely fertile and provides excellent crops of cotton, oils seeds and sugarcane. The rainfall in the state varies considerably, the areas west of the Sahyadris like the districts of Thane, Raigad, Ratnagir and Sindhudurg receive heavy rains with ar



Hundred years of Victoria Terminus

Bombay's Victoria Terminus which completed a century on Sunday, June 28, 1987 is one of the most impressive railway terminuses in the world.

Two million commuters arrive or depart by 913 local and 50 outstation services there daily. Designed by F. W Stevens the looming 457.2 metre structure was built in 10 years from 1878 to 1888 and cost Rs 10 41 lakh

The statue of progress (lady with a flaming torch and spoked wheel) adorns the main building But the statue of Queen Victoria in the quadrangle was struck by lightning and damaged in 1969 It now rests in the arts museum

annual average of 200 cm.

The areas which lie in the rain-shadow of the Sahyadris, however, comprise the major portion of the state area and get an average rainfall of around 60 to 75 cm annually and in some areas less than 50 cm. These areas include the districts of Nashik, Pune, Ahmednagar, Dhule, Jalagaon, Satara, Sangli, Solapur and parts of Kolhapur.

History: Historically, Maharashtra falls into three regions. Western Maharashtra, Vidarbha and Marathwada. Among these, Vidarbha has a hoary past and is mentioned many times in the Mahabharata. Maharashtra as a whole figures in history during the Mauryan period when it became part of the Mauryan Empire. After the fall of the Mauryas, Maharashtra was under the domination of a number of Hindu dynasties for nearly a thousand years. The Yadavas, the last of these dynasties, ended in 1294. Thereafter the state came under a succession of Muslim rulers.

With the rise of Shivaji, Maharashtra entered a new phase in history. Shivaji united the Marathas into a powerful nation [illegible] rulers instead of subjects. [illegible] succeeded Shivaji built [illegible] which extended from [illegible] Tanjore in the south [illegible] received a setback

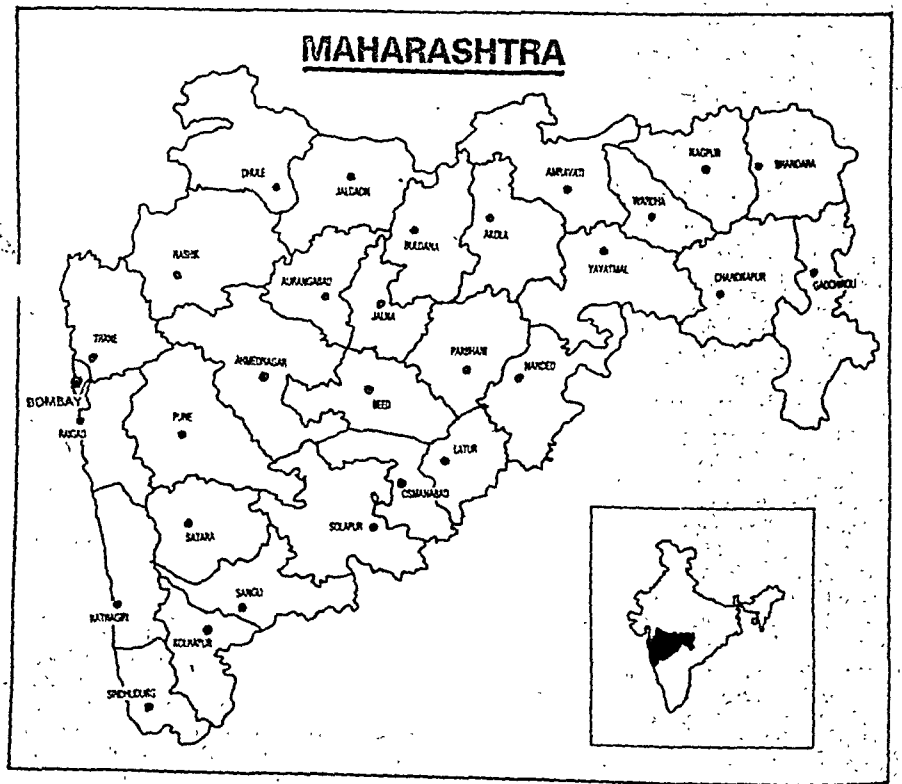
the Afghan ruler Ahmed Shah Abdali routed the Maratha forces. They recovered only to confront the British power and to be decisively defeated in 1818. After the defeat of 1818 Maharashtra settled down as part of the Bombay Presidency under the British administration.

In independent India, Bombay continued as one state consisting of Maharashtra and Gujarat. This was an experiment in bilingualism–that is, one state comprising two linguistic units. The experiment did not work. Under the Bombay Re-organization Act, 1960 Maharashtra and Gujarat were formed into separate states on May 1, 1960, Maharashtra retaining the old capital Bombay.

Administration: Legislature: The state has a bicameral legislature–the Legislative Assembly (Vidhan Sabha) and the Legislative Council (Vidhan Parishad). The state is divided into the following districts:

Districts

District	Population 1981	Area (in sq km)	Headquarters
Greater Bombay	8243405	603	Bombay
Thane	3351562	9558	Thane
Raigad	1486452	7148	Alibag
Ratnagiri†	1379655	8249	Ratnagiri
Sindhudurg	772555	5219	Kudal*
Nashik	2991739	15530	Nashik
Dhule	2050294	13150	Dhule
Jalgaon	2618274	11765	Jalgaon
Ahmednagar	2708309	17048	Ahmednagar
Pune	4164470	15642	Pune
Satara	2038677	10484	Satara
Sangli	1831212	8572	Sangli
Solapur	2610144	14874	Solapur
Kolhapur	2506330	7633	Kolhapur



Aurangabad‡	1588031	9172	Aurangabad
Jalna*	1032157	8656	Jalna
Parbhani	1829378	11038	Parbhani
Bid	1486030	10624	Bid
Nanded	1749334	10502	Nanded
Osmanabad+	1029712	7510	Osmanabad
Latur*	1293442	7304	Latur
Buldana	1508777	9661	Buldana
Akola	1826952	10575	Akola
Amaravati	1861410	12212	Amaravati
Yavatmal	1737423	13584	Yavatmal
Wardha	926618	6310	Wardha
Nagpur	2588811	9931	Nagpur
Bhandara	1837577	9213	Bahandara
Chandrapur**	1418306	10490	Chandrapur
Gandachiroli§	637336	15433	Gadchiroli

* - Provisional
† Reorganized as Ratnagiri and Sindhudurg district with effect from 1st May 1981.
‡ Reorganized as Aurangabad and Jalna districts with effect from 1st May 1981.
+ Reorganized as Osmanabad and Latur districts with effect from 16th August 1982.
** Reorganized as Chandrapur and Gandachiroli districts with effect from 26th August 1982.
§ Gandachiroli from 1st May 1983 onwards.

State of Economy: About 70 per cent of the people in Maharashtra depend on agriculture. About 12.22 per cent of the total cultivated area is irrigated. The principal food crops are wheat, rice, jowar, bajra and pulses. Important cash crops are cotton, sugarcane, groundnut and tobacco.

Although the state accounts for 9.2 per cent of the total population of the country, it shares about 11 per cent of industrial units, over 17 per cent of labour, about 16 per cent of investment and 23 per cent of the value of industrial output.

The industry groups contributing substantially to Maharashtra's industrial production are chemicals and chemical products, textiles, electrical and non-electrical machinery and petroleum and allied products. Other important industries are pharmaceuticals, engineering goods, machine tools, steel and iron castings and plasticware. It also leads in sophisticated electronics equipment. Santa Cruz Electronics Export Processing Zone (SEEPZ), is a free trade zone for cent per cent export.

The development of offshore oil fields at Bombay High and the nearby Bassein North Oil Fields have contributed greatly for the industrial development of the state.

Bombay is the Hollywood of India as far as film production is concerned. New growth centres are coming up at Nasik, Aurangabad, Nagpur, Jalgaon.

Tourist Centres: Some of the important tourist centres are the Caves–Ajanta, Ellora, Elephanta, Kanheri and Karala; Hill stations–Mahabaleshwar, Matheran and Panchagani; Religious Places: Pandharpur, Nashik, Shirdi, Aundhanagnath, Nanded and Ganapatipule.

Governor: Vaccant. **Chief Minister:** S.B. Chavan (Congress).

MANIPUR

Area: 22,327 sq km; **Capital:** Imphal; **Population:** 14,20,953; **Languages:** Manipuri & English; **Literacy:** 41.35%.

Manipur has been a Union Territory from 1956 and a full-fledged state from 1972.

Manipur is bounded by Nagaland in the north, Mizoram in the south, Upper Burma in the east and Cachar district of Assam in the west.

History: Manipur has a varied and proud history from the earliest times. It came under British rule as a princely state in 1891. The Manipur Constitution Act, 1947, established a democratic form of government with the Maharajah as the Executive Head and a legislature constituted by election on adult franchise. The Legislative Assembly so constituted functioned till it was dissolved on the integration of the erstwhile state with the Dominion of India in October, 1949.

Then it was governed as if it were a Chief Commissioner's Province and then as a Part 'C' State under the Indian Constitution with effect from 26-1-1950. In 1950-51 an advisory form of popular government was introduced and in 1957 this was replaced by a Territorial Council of 30 elected and 2 nominated members. Thereafter in 1963, a legislative assembly of 30 elected and 3 nominated members was established.

The status of the Administrator was raised from that of a Chief Comm[illegible] to that of a

Lieutenant Governor in December, 1969. Manipur achieved full statehood on January 21, 1972.

Administration: Manipur was reorganized into 8 districts in 1983. The district headquarters bear the same name as the districts.

Districts		
Imphal	1,303	5,56,146
Bishnupur	530	1,41,150
Thoubal	405	2,31,781
Ukhrul	4,544	82,946
Senapati	3,271	1,55,421
Tamenglong	4,391	62,289
Churachandpur	4,570	1,34,776
Chandel	3,313	56,444

State of Economy: The main crop of the state is paddy. Maize is cultivated in the foot hills. Out of the area of 22,327 sq km, the area available for cultivation is about 2.1 lakh hectares only. The area under paddy is 1.86 lakh hectares out of which 1.10 lakh hectares is in the valley. About 70% of the valley area has been brought under high yielding varieties of paddy.

The state has made significant advance in the field of agriculture. Per hectare consumption of fertilisers reached 57 kg during 1986-87. More than 70% of the high yielding varieties of paddy are locally bred, punshi, phouoibi and 'D' series.

Handloom is the biggest industry in Manipur. There are 3 lakh spindles and at least 3 lakh persons are employed in the field.

The Manipur Spinning Mill, launched in 1974 has grown to use 16,416 spindles.

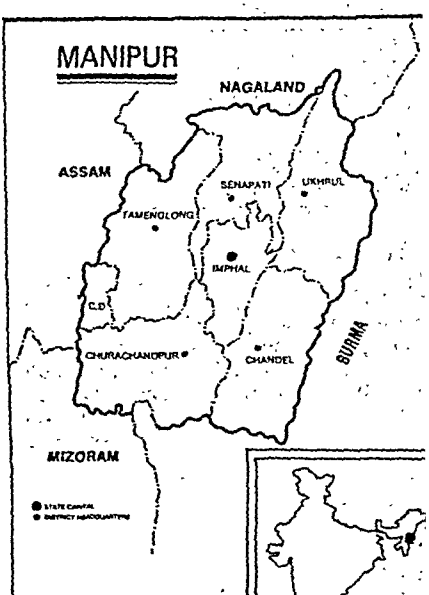
The 60 TPD capacity Khandsari Sugar Factory at Wanghal has gone into production.

A TV assembly unit and cycle assembly unit are working in full swing. A Mechanised Dye House was commissioned in 1987.

There are 5970 small scale industrial units with almost 23,800 workers in the state.

Sericulture: Manipur is the first to introduce Oak Tasar Industry. In the hill area there are 75 Tasar Farms. 1500 Tribal families (or 1500 numbers) produce about 30 million Tasar cocoons valued Rs.3.00 million. Apart from this over 100 Scheduled Caste families in the valley practise Mulberry rearing in traditional ways producing 45,000 kg of raw silk annually by reeling and spinning and utilise the same in its exquisite handloom industry.

Tourist Centres: The important tourist centres in the state are Imphal, the capital and centre of all cultural and commercial activities adorned with two War Cemeteries maintained by Commonwealth War Graves Commission Govindajee Temple, Women bazaar, etc. Besides, the Bishnu temple at Bishnupur built in 1467 A.D., the Loktak lake, the biggest fresh water lake in eastern India, Keibul Lamjao, the



only floating national park in the world, the Orchid Yard at Khongampat etc. are also quite attractive.

Accommodation facilities at important centres such as Waichou, Kaina, Phubala, Sendra and Tourist Lodge at Imphal are remarkable. Transport facilities are provided with Deluxe Mini Bus and Taxi services at moderate charges.

Governor: S.M.H. Burney; **Chief Minister** Rishang Keishing (Congress).

MEGHALAYA

Area: 22,429 sq km; **Capital:** Shillong; **Population:** 13,35,819; **Languages:** Khasi, Garo and English. **Literacy:** 34.08%.

Meghalaya, literally 'the abode of the clouds' (Megha-clouds, Alaya-abode), was inaugurated as an autonomous unit on April 2,1970. It was declared a state of the Indian Union on January 21, 1972.

Physiography: The exclusive tribal State of the Khasis, the Jaintias and the Garos is a mountain region. Shillong, the capital of Meghalaya, is situated in the centre of a high plateau. The highest peak in the state is the Shillong Peak 6965 ft in height. Nokrek in the Garo Hills district is the next highest peak.

A number of rivers, none of them navigable, drain this mountainous area. Krishnai (Damring), Kalu (Jira), Bhugai (Bugi), Nitai (Dareng) and Someswari (Simsang)* flow through the Garo Hills District; Kynshi, Khri, Umtrew, Umngot, Umiam Mawphlang and Umiam Khwan flow through Khasi Hills district and Kupli, Myntdu & Myntang flow through Jaintia Hills district. All these rivers with rocky beds and swift currents abound in cataracts and waterfalls. The most picturesque waterfall is the one at Mawsmai village called Nohsngithiang near Cherrapunjee. Here, the waters of several rivulets are precipitated over a sheer cliff several hundred feet high.

The average annual rainfall of the state is 10000-12700 millimetres. In the capital city of Shillong, rainfall averages 2032 millimetres per annum. The Cherrapunjee-Mawsynram belt in the southern slopes of Khasi Hills has the distinction of having the world's heaviest rainfall, with an average of 12,700 millimetres per annum.

Meghalaya, known as the Scotland of the East, is a country of surpassing scenic beauty. Waterfalls and mountains, lakes, rising peaks and billowing hills, meadows, valleys and rushing rivers combine to make a rich panorama.

The Khasis, Jaintias and Garos are very ancient tribes, who had settled in these hills in remote past. They number about ten lakh.

Dance, music and sports reflect their way of life. Festive sounds of merry-making echo from hill to hill revealing the pulsating life of the tribal people. Mindful of their cultural heritage these simple folk are jovial and hospitable.

Administration: Meghalaya is a constituent state of the North Eastern Council. The state has a unicameral legislature. The Legislative Assembly consists of 60 members—29 from Khasi Hills, 7 from Jaintia Hills and 24 from Garo Hills.

The following table shows the district-wise area and population of the state according to the final figures of 1981 census.

Districts

District	Area (sq km)	Population	Headquarters
East Khasi Hills	5196	511414	Shillong
West Khasi Hills	5247	161576	Nongstoin
East Garo Hills	2603	130550	Williamnagar
West Garo Hills	5564	96877	Tura
Jaintia Hills	3819	156402	Jowai

Meghalaya, originally, comprised two districts and three subdivisions. In order to accelerate the pace of development and to bring the administration closer to the people, the state has now been re-organized into five districts, and ten sub-divisions. For an all round development of the rural areas, the whole state is now covered by 30 Community Development Blocks.

State of Economy: The majority of the people depend on land for their livelihood But the potential for agricultural expansion is very limited in Meghalaya due to the terrain. Jhumming or shifting cultivation, practised in the state on a large scale, is one of the biggest problems to be tackled in Meghalaya. This traditional practice is deeply rooted among the hill people.

However, the state government has made a modest beginning with a scheme to help the farmers to settle on lands which are suitable for steady cultivation. The state's Soil Conservation Department's resettlement scheme called Jhum Control Sche[illegible] villa[illegible]

* The names in brackets are tribal names.

ment of improved land to villagers together with supply of fertilizers, seeds, irrigation facilities, etc. The developed lands would also be linked with roads for marketing the produce. At present, the villages in selected areas with a minimum of 50 families are growing crops by modern methods.

The state is not so far industrially developed. However, new industrial units set up by or with the help of the Meghalaya Industrial Development Corporation are fast coming up. Some of them are:

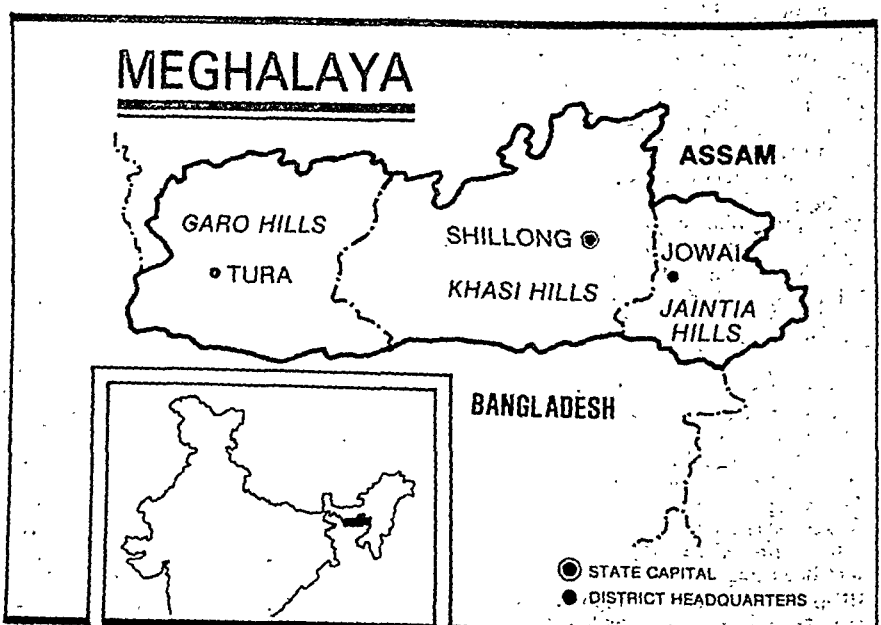
The Meghalaya Plywood Ltd., The Associated Beverages (P) Ltd., The Meghalaya Essential Oils and Chemicals Ltd., The Meghalaya Phyto-Chemicals Ltd. The Komorah Limestone Mining Co. Ltd., The Meghalaya Towers and Trusses Ltd. and the Umiam Calcenates Ltd.

The public sector cement factory at Cherrapunjee known as the Mawmluh-Cherra Cement Ltd., which was producing 250 tonnes of cement daily, has been expanded to a production capacity of 930 tonnes per day.

Tourist Centres: Meghalaya is a 'dream-come-true' for the tourist. The charms of this land are many-splendoured and unique. It is a happy land of magnificent beauty, undulating hills, rolling grasslands, cascading waterfalls, snaking rivers, terraced slopes and thrilling wild life.

Some of the important tourist spots are: (1) Uniam Lake by the side of the Shillong-Guwahati road provides a very fascinating view. Fishing is a great sport over here. (2) Kyllang Rock, about 55 kilometres west of Shillong, is an interesting tourist spot. Rising out of the rolling grassy downs, it is an imposing dome of granite more than 700 feet in height. (3) Nohsngithiang falls at Mawsmai near Cherrapunjee, overlooking the hazy blue plains of Bangladesh, has an appeal unparalleled in the whole of India. And the Mawsmai caves are full of wonders to the eyes. (4) Nartiang, about 90 kilometres from Shillong, has a number of monoliths, the tallest being 27 feet high and ½ foot thick erected by the villagers of Nartiang between 1500 and 1835 A.D.

Governor: Bhishma Narain Singh. **Chief Minister:** Capt. Williamson Sangma (Congress).



MIZORAM

Area: 21081 sq km; **Capital:** Aizawl; **Population:** 4,93,757; **Languages:** Mizo and English; **Literacy:** 60%.

Mizoram, in the local language, means the land of Mizos—Mizo itself means high lander (mi-persons and zo-hills or uplands). Under the British administration, Mizoram was known as Lushai Hills District. In 1954 by an Act of Parliament the name was changed to Mizo Hills District. In 1972, when it was made into a Union Territory, it was named Mizoram.

Physiography: Mizoram occupies the north east corner of India. It is bounded on the north by the District of Cachar (Assam) and the State of Manipur, on the east and south by Chin Hills and Arakan (Burma), on the west by the Chittagong hill tracts of Bangladesh and the State of Tripura.

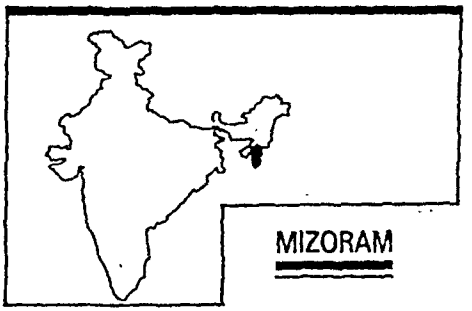
Mizoram is a land of hills. The hills run in ridges from north to south. They have an average height of 900 metres, the highest point being the Blue Mountain (Peak) in the south which rises to a height of 2165 metres. The hills are steep and cut apart by rivers which have created deep gorges. The terrain, on the whole, is mountainous except for low depressions amid hills, where wet cultivation is practised.

The most important and useful rivers are the Tlawng (or the Dhaleswari), the Sonai and the Tuivawl, which drain the northern area of the Territory and eventually join the Barak. The southern area is watered by the Kolodine and its tributaries and the western area by the Karnaphuli with its tributaries. Chittagong in Bangladesh is situated at the mouth of this river.

The valleys are unhealthy during the rainy season, wet and enervating. In the higher areas, the climate is pleasant, generally cool in summer and not very cold in winter. In March-April violent storms from the north west sweep over the hills. The average rainfall between May and September is 254 cm. Aizwal in the north records an annual rainfall of 208 cm while Lunglei in the south records 350 cm.

History: The Mizos belong to the Mongolian race. They seem to have settled at first in the Shan State of Burma. The tribes left Burma and moved westwards into India. They occupied the Lushai Hills.

During the British administration, the Mizos raided British territories and even attacked fortified positions. The British army moved against the Mizos and occupied their territory. It was annexed to British India in 1891. In 1898, the entire Mizo territory was formed into the Lushai Hills District and made a part of Assam. Although the Mizos were subjugated, the British did not interfere with their village administration. The Mizo Chiefs carried on the day-to-day administration in the traditional manner.



With independence, Mizoram became a district of Assam. Because of neglect by the authorities, the Mizos felt that it was a bad bargain for them to continue as part of India and started agitations in 1966. It was declared a disturbed area. Armed Forces (Special Powers) Act also was invoked. On June 30, 1986, the historic Mizoram Peace Accord was signed between the Government of India and the Mizo National Front ending the two-decade old insurgency.

The Mizos are divided into various tribes—the Lushais, Pawis, Paithes, Raltes, Pang, Hmars, Kukis, Maras, Lakhers, etc. In the 19th century the Mizos came under the influence of British missionaries and many Mizos were converted to Christianity.

The Mizo language had no script of its own. The missionaries introduced the Roman script for the Mizo language and started teaching English also. The cumulative result was a high precentage of literacy. The majority of the tribes are Christians and speak Mizo and English. But some tribes on the border like the Chakmas are Buddhist and speak Bengali.

Administration. Mizoram has a single-chamber legislature consisting of 33 members. The territory has three Districts, 9 Sub-Divisions, 3 autonomous Hill District Councils, 6 Towns (as per 1981 census), 23 Police Stations and 301 Village Councils (instead of Gram Panchayats).

Districts

District	Area (sq km)	Population (1981)	Headquarters
Aizawl	12589	340826	Aizawl
Lunglei	4536	86511	Lunglei
Chhimtuipui	3957	66420	Chhimt

State of Economy: Agriculture is practi the only occupation in Mizoram. The terr is famous for its fibreless ginger, altho other cash crops like mustard, sesame potatoes are also grown. However, the cul tion method— "Jhum" —is very primitive destructive. The Mizoram Government is trying to induce the peasants to change ov more permanent systems of cultivation terraced farming on the hill sides. There also schemes to grow plantation crops rubber, coffee, tea, etc.

Paddy is the chief food crop, followe maize. They are grown on the slopes of One of the chief constraints in increa agricultural production is the lack of in tional facilities. Only 2885.30 ha is irrigate Mizoram.

There is no major industry in Mizo Handloom and handicraft are the majo dustrial activities in the Territory and Engineering Unit has developed a new de of machine-combined ginning and card

Tailoring, knitting and embroidery cer have been set up.

Sericulture in 4 kinds of silk, — Mulb Eri, Tasar, and Muga is practised widel

Other industries are: Ginger beverages, fruits preservation, handloom and some o small scale & cottage industries like bak printing press, saw mills, brick making, s making, etc.

Lt. Governor: Hiteshwar Saikia; C **Minister:** Laldenga (Mizo National Fron

NAGALAND

Area: 16,579 sq km; **Capital:** Kohima; **Population:** 7,74,930; **Languages:** English, Ao, Konyak, Angami, Sema and Lotha. **Literacy:** 41.99%.

Physiography: The State of Nagaland is a narrow strip of mountainous territory between the Brahmaputra Valley of Assam and Burma. On the east it shares India's international boundary with Burma. On all other sides it is bounded by Indian territory—Manipur on the south, Assam on west and north, and Arunachal Pradesh on north east.

Excepting some areas in the foothills, state is mountainous. Saramati, the hig peak, is 12600 ft high and Kohima, the cap is 4800 ft above sea level. The main rivers flow through the state are Dhansiri, Doy Dikhu and Jhanji.

The population of Nagaland is almost ent

ly tribal. There are many separate tribes and sub-tribes among the Nagas with their own distinctive languages and cultural features. Kohima district is the home of the Angamis, Zeliangs, Rengmas, a small group of Kukis, Semas and other minor groups. Mokokchung is the home of Aos, Wokha district of the Lothas and Zunheboto district of the Semas. Tuensang district is the home of the Chang, the Sangtam, the Khemnungan, the Yimchunger, the Phom, the Semas and other minor groups. Mon district is the home of the Konyaks. It is these people who chiefly practise Jhum cultivation.

History: The Nagaland State comprises the former Naga Hills district of Assam and the former Tuensang Frontier division of the North East Frontier Agency. These had been made a Centally Administered Area in 1957, administered by the President through the Governor of Assam. In January 1961 the Government of India conferred the status of a State on Nagaland. The State of Nagaland was officially inaugurated on 1st Dec. 1963.

Administration: The State has a unicameral legislature—the Legislative Assembly.

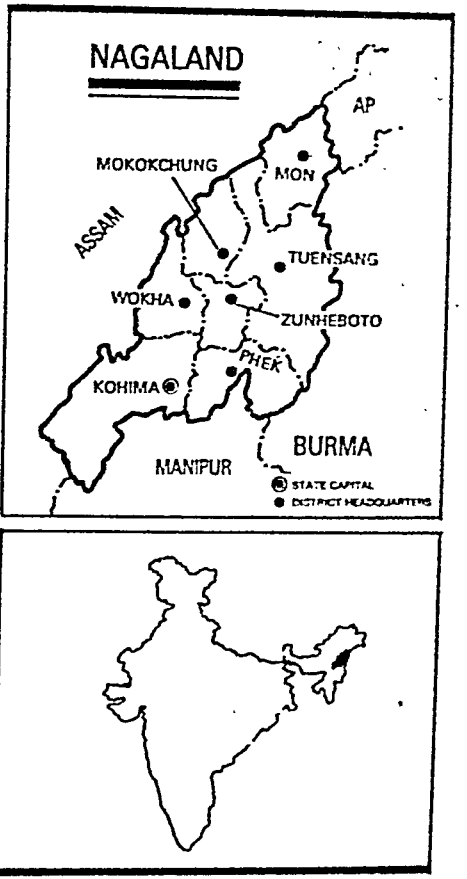
Districts

District	Area (sq km)	Population 1981	Headquarters
Kohima	4041	250105	Kohima
Phek	2026	70618	Phek
Mokokchung	1615	104193	Mokokchung
Zunheboto	1255	61161	Zunheboto
Wokha	1628	57583	Wokha
Tuensang	4228	152332	Tuensang
Mon	1786	78938	Mon

Originally the state was divided into 3 districts. In Dec. 1973, the districts were reconstituted as above.

State of Economy: Agriculture is the main occupation of 90% of the population. Rice is the important food grown.

Although agriculture is the mainstay of the state, only a little more than one-third of the total area is cultivable. Considering the hilly terrain, this is not unusual but the main drawback is that cultivation is vitiated by what is called jhumming. Under this system, forest lands are cut down and burnt and crops are planted in the burnt out lands. After a crop or



two, these lands are abandoned and fresh forests are cut down and burnt. This leads to soil erosion and permanent loss of fertility of the soil.

But now the Govt. is encouraging terraced cultivation under various developmental programmes which are increasingly being adopted by people. The area under jhum cultivation is 87339 hectares and under terraced cultivation 62091 hectares.

Nagas have an artistic hand in many crafts. Carving of beautiful designs with their simple equipment like dao, home-made colours and pieces of bamboo is practised mostly for domestic and local requirements.

Nagaland has achieved remarkable p

in small and medium industries. Big industries are being planned although at present there is only 1 sugar mill, 1 pulp and paper mill and one plywood factory. One cement factory is also coming up.

Among the new industries are moulding, hume pipes, polythene bag rubber chappals.

Governor: Gen. K.V. Krishna Rao.

Minister: Hokishe Sema (Congress).

ORISSA

Area: 1,55,707 sq km; **Capital:** Bhubaneswar; **Population:** 2,63,70,271; **Language:** Oriya; **Literacy:** 34.12%.

Physiography: Orissa lies on the east coast of India. It is surrounded by West Bengal in the north-east, Bihar in the north, Andhra Pradesh on the south-east, Madhya Pradesh on the west and Bay of Bengal on the east. The whole state lies in the tropical zone and is divided into four distinct tracts, viz, the northern plateau, the eastern ghats, the central tract and the coastal plains. The state is drained by three great rivers, the Mahanadi, the Brahmani and the Baitarani and the some lesser rivers, all of which flow into the Bay of Bengal.

The biggest and the most famous lake in Orissa is the Chilka lake. Originally, it was part of the Bay of Bengal, but was subsequently closed up by sand dunes. It is 64 km along and 16 to 20 km wide. There are two beautiful islands in the lake namely Parikud and Malud. Two other lakes call for mention, the Ansupa Lake (Cuttack District), about 5 km long and 1.6 km broad, and the Sara Lake, (Puri District) about 5 km long and 3 km wide.

Orissa has an equable climate, neither too hot nor too cold. In some places, however, extremes of climate are experienced, namely, in the western districts like Bolangir, Sambalpur and Sundargarh. The average rainfall in the state is 150 cm. There is no desert or semi-desert area in the state.

History: Orissa, the land of the Oriyas, was known as Kalinga in the ancient days. In the third century B.C. (268 B.C.) Ashoka, the Mauryan emperor, sent a powerful force to conquer Kalinga which offered stubborn resistance. Kalinga was subdued but the carnage which followed struck Ashoka with remorse. It is here, where Ashoka "the Terrible" was transformed to Ashoka "the Compassionate". After the death of Ashoka, Kalinga regained its independence. In the second century B.C. Kalinga became a powerful country under its ruler Kharavela. With the death of Khar Orissa passed into obscurity. In th century A.D. Samudragupta set out c conquest of the south from Magadh invaded Orissa, which lay astride his pa overcame the resistance offered by five kings. In A.D. 610, Orissa came under th of King Sasanka. After Sasanka's death I conquered Orissa.

The country had its own indepe dynasty of rulers (the Ganga dynasty) 7th century A.D. In A.D. 795 Mahasiv Yayati the Second, came to the throne an him began the most brilliant epoch history of Orissa. He united Kalinga, Ke Utkala and Kosala in the imperial tradi Kharavela. He is believed to have bu famous Jagannatha Temple at Puri. Und kings of the Ganga dynasty, Orissa con to flourish. Narasingha Dev of this dyn reputed to have built the unique temple Sun at Konarak.

From the 14th century, Orissa was ru successive Muslim Kings till 1592 when annexed it to the Mughal Empire. Wi decline of the Mughals, the Marathas oc Orissa. They continued to hold it t British took over in 1803.

Orissa was made into a separate provi 1936. With independence, the Princely in and around Orissa, surrendered sovereignty to the Government of India. States Merger (Governor's Provinces) 1949, the Orissa Princely States were pletely merged with the State of Orissa c August, 1949.

Administration: The legislatur unicameral—the Legislative Assembly c ing of 147 members.

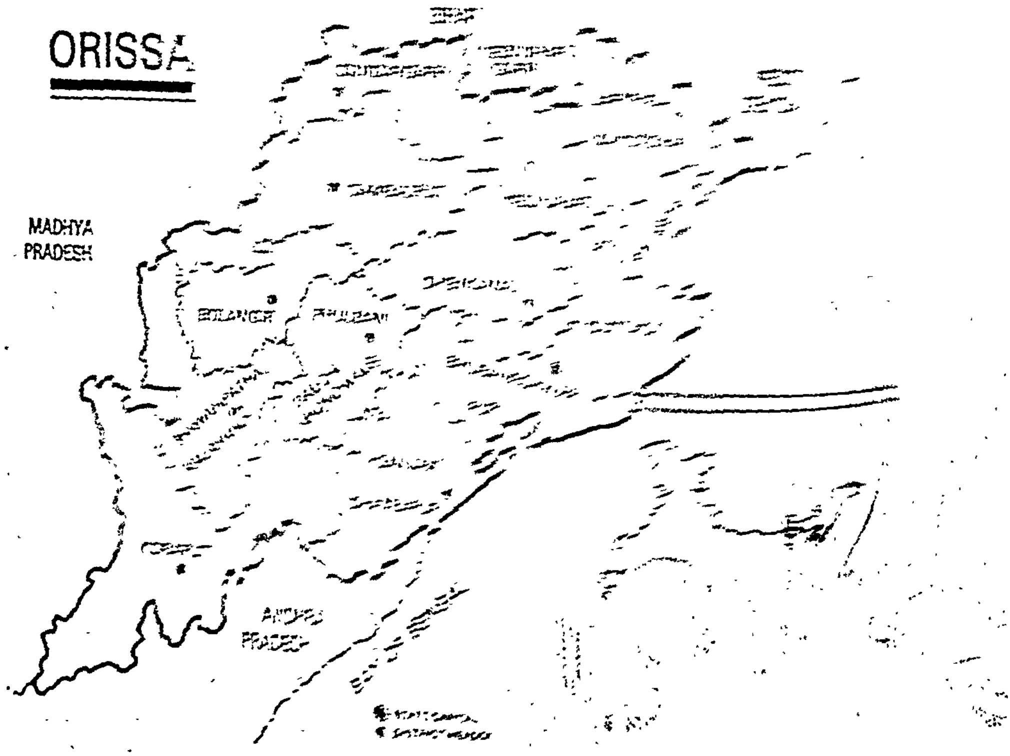
The state is divided into 3 revenue div Central, Northern and Southern and th districts.

Districts

District	Area sq km	Population 1981	Headquarters
Baleshwar	6394	2252808	[illegible]
Phulbani	11070	717282	[illegible]
Balangir	8903	1459113	Balangir
Cuttack	11211	4628800	[illegible]
Dhenkanal	10826	1552[illegible]	[illegible]
Ganjam	12527	2669399	[illegible]
Kalahandi	11835	1339192	[illegible]
Kendujhar	8240	1114622	[illegible]
Koraput	27020	2484005	[illegible]
Mayurbhanj	10412	15818[illegible]3	[illegible]
Puri	10159	2921045	[illegible]
Sambalpur	17570	[illegible]	[illegible]
Sundargarh	9675	[illegible]	[illegible]

Orissa has a [illegible] Castes and Tribes which [illegible]

[illegible]



Dalhousie in March, 1849. But the spirit of the Punjab remained unvanquished. Through the centuries Punjab became the sword arm of British India.

Punjab was constituted a separate province of India in 1937. With the partition of India, Punjab was divided between India and Pakistan as East Punjab and West Punjab. On Nov. 1, 1956 the Princely States adjoining Punjab were formally absorbed into the Punjab State. On Nov. 1, 1966, Punjab was divided into three units—Punjab comprising the predominantly Punjabi-speaking areas; Haryana made up of the Hindi-speaking districts and Kharar tehsil and Chandigarh the Capital. Hilly areas were transferred to Himachal Pradesh.

Administration. The Legislature is unicameral – the Legislative Assembly. The state is divided into 12 districts.

Districts

District	Area in sq km	Population (1981)	Headquarters
Amritsar	5087	2188490	Amritsar
Bhatinda	5551	1304606	Bhatinda
Faridkot	5740	1436228	Faridkot
Ferozepur	5874	1307804	Ferozepur
Gurdaspur	3562	1513435	Gurdaspur
Hoshiarpur	3881	1243807	Hoshiarpur
Jalandhar	3401	1734574	Jalandhar
Kapurthala	1633	545249	Kapurthala
Ludhiana	3857	1818912	Ludhiana
Patiala	4584	1568898	Patiala
Sangrur	5107	1410250	Sangrur
Ropar	2085	716662	Ropar

State of Economy. Punjab is primarily an agrarian state and agriculture occupies the most prominent place in Punjab's economy. About 70 percent of the people are engaged in agriculture. As against an all India average of 51 percent, it has 85 percent of its area under cultivation. Net area under cultivation is 84 percent as against the all India average of 42.65 percent. Compared to all other states, the fertilizer consumption in Punjab is the highest. The efforts of the state government to provide irrigation facilities, cheap power and agriculture inputs at subsidised rates have acted as a catalyst for agriculture production. Total production of foodgrains rose from 147.77 m tonnes in 1983-84 to 154.50 m tonnes in 1984-85.

Agriculture production is now nearing the saturation point.

As many as 35455 small scale industrial units were set up during the period of three years 1982-83 to 1984-85 as compared to 11607 units set up during the period of 1977-78 to 1979-80, which is an increase of more than 3 times.

The chief manufactures are textiles, sewing machines, sports goods, sugar, starch, fertilizers, bicylces, scientific instruments, electrical goods, machine tools and pine oil.

There were 100899 small scale units registered in the state upto 31-3-1985. These units employed 4,96,000 persons and during 1984 produced goods valued at Rs.1625 crore.

Tourist Centres: Punjab is dotted with places of historical and cultural interest. Ropar, one of the centres of Indus Valley civilization, Amritsar, the city of the Golden Temple, sacred to the Sikhs, the ancient fort of Bhatinda, the architectural monuments of Kapurthala, the City of Gardens, Patiala and Chandigarh the capital designed by the French architect Le Corbusier are among the leading tourist attractions of the state.

Governor: Siddhartha Shankar Ray. Punjab is under President's rule since early 1987.

RAJASTAN

Area: 3,42,239 sq km; **Capital:** Jaipur; **Population:** 3,42,61,862, **Languages:** Hindi and Rajasthani; **Literacy:** 24.38%

Rajasthan is one of the border states of India, sharing India's frontier with Pakistan on the west and northwest. Punjab bounds it on the north, Haryana and Uttar Pradesh on the north-east and east, Madhya Pradesh on the south and south-east and Gujarat on the south-west.

Physiography: Rajasthan is one of the few states of India that show great contrast from one area to another. This disparity is noticeable in respect of climate, soil, vegetation, mineral resources, etc. However, the state may be divided into 6 regions. (1) Western arid region, (2) Semi-arid region, (3) South eastern region, (4) Chambal ravines, (5) Aravalli region and (6) Eastern region.

The western arid region covers the whole of Jaisalmer district, north-western part of Barmer and Jodhpur, south-east Bikaner, south

western Churu and western part of Nagaur. This region is characterized by typical desert conditions and forms the largest region in the state.

The semi-arid region lying west of the Aravalli ranges covers the districts of Jalore, Pali, south-eastern Jodhpur and Nagaur, Sikar, Jhunjhunu and north-eastern part of Churu. The southern part of this area is watered by the Luni river while the northern part is an area of inferior drainage.

The Rajasthan canal (named as Indira Gandhi Canal) passes through the north-west portion of this region irrigating at present Ganganagar district and the north western part of Bikaner district.

The Aravalli region covers almost the whole of Udaipur, south eastern part of Pali and Sirohi and the western part of Dungarpur districts. The area is dominated by the mountains of the Aravalli range and outlying hills.

The eastern region comprises the districts of Jaipur, Ajmer, Sawai Madhopur, Bhilwara, Bundi, Alwar, Bharatpur and north-western part of Kota. It is mainly drained by the Banas river and its tributaries. This region has the largest number of industries, located mainly at Jaipur, Ajmer, Kota, Bhilwara and Shahpura.

The south-eastern region embraces the districts of Banswara, Chittorgarh, Jhalawar and Kota. The Kota-Jhalawar area consists of stony uplands but the Chambal river and its tributaries have formed an alluvial basin in Kota.

The Chambal ravine region lies along the river Chambal, where it forms the boundary between Rajasthan and Madhya Pradesh.

History: The State of Rajasthan is an amalgam mainly made up of the old princely states of Rajasthan. It took some eight years for the state to come into its present shape. The first step towards the formation of this state was taken on March 17, 1948 with the formation of the Matsya Union, a Union of four princely states, Alwar, Bharatpur, Dholpur and Karauli. The second step came with the formation of Rajasthan, a Union of 9 states-Banswara, Bundi, Dungarpur, Jhalawar, Kishangarh, Kota, Pratapgarh, Shahpura and Tonk on March 25, 1948. The state of Udaipur joined this union on April 18, 1948, thus transforming the Union into the United States of Rajasthan.

The next two important steps were taken in 1949, the first on March 30, 1949 when the four large states of Bikaner, Jaipur, Jaisalmer and Jodhpur joined the United States of Rajasthan and the second on April 25, 1949 when the Matsya Union joined up. The new union was known as the the United States of Greater Rajasthan. The Union of Greater Rajasthan was further enlarged by the accession to it of the state of Sirohi on Jan. 25, 1950. The final step was taken when the state of Ajmer, the tehsil of Abu and the area of Sunel Tuppa were integrated with Greater Rajasthan on Nov. 1, 1956, to be known simply as Rajasthan.

Administration: The legislature is unicameral—the Legislative Assembly. The state is divided into 27 districts, 84 subdivisions and 203 tehsils.

Districts

District	Population 1981	Area in (sq km)	Headquarters
Ajmer	1440366	8479	Ajmer
Alwar	1771173	8382	Alwar
Banswara	886600	5037	Banswara
Barmer	1118892	28387	Barmer
Bharatpur	1884132	8093	Bharatpur
Bhilwara	1310379	10450	Bhilwara
Bikaner	848749	27231	Bikaner
Bundi	586982	5550	Bundi
Chittorgarh	1232494	10858	Chittorgarh
Churu	1179466	16829	Churu
Dungarpur	682845	3770	Dungarpur
Ganganagar	2029968	20629	Ganganagar
Jaipur	3420574	14000	Jaipur
Jaisalmer	243082	38401	Jaisalmer
Jalore	903073	10640	Jalore
Jhalawar	784998	6216	Jhalawar
Jhunjhunu	1211583	5929	Jhunjhunu
Jodhpur	1667791	22860	Jodhpur
Kota	1559784	12437	Kota
Nagaur	1628669	17718	Nagaur
Pali	1274504	12391	Pali
S. Madhopur	1535870	10593S	Madhopur
Sikar	1377245	7732	Sikar
Sirohi	542049	5135	Sirohi
Tonk	783635	7200	Tonk
Udaipur	2356959	17267	Udaipur
Dholpur	583156	3000	Dholpur

State of Economy. The principal crops are jowar, bajra, maize, wheat, grams, oil-seeds, cotton, sugarcane and tobacco. A deficit state in foodgrains in the pre-independence years, the state achieved an all-time high in farm

yield in 1967-68 (66 lakh tonnes). This abundance was followed by two years of want and unprecedented scarcity which shattered the economy of the state. Food grains production in 1986-87 was 70 lakh tonnes.

Textiles, rugs and woollen goods, sugar, cement, glass, sodium, oxygen and acetylene units, pesticides, insecticides and dyes are some of the major industries. Other enterprises include the manufacture of caustic soda, calcium carbide and nylon tyre cord and copper smelting.

Rajasthan handicrafts are famous all over the world. Important handicrafts are marble wor woollen carpets, jewellery, embroidery, ar cles of leather, pottery and brass embossin

Tourist Centres. Rajasthan has sever sights to offer the tourist, especially in ancie and medieval architecture. Places of intere are Mount Abu, Ajmer, Alwar, Bharatpu Bikaner, Jaipur, Jodhpur, Udaipur, Pali, Jais mer and Chittorgarh. In the year 1985-8 nearly 2.92 lakh foreign tourists and 31.14 lal home tourists visited Rajasthan.

Governor: Vacant; **Chief Minister:** Ha deo Joshi (Congress).

SIKKIM

Area: 7,096 sq km; **Capital:** Gangtok; **Population:** 3,16,385; **Languages:** Lepcha, Bhutia, Hindi, Nepali, Limbu; **Literacy:** 34%.

Sikkim, the 22nd state of the Indian Union, is a small mountain state in the eastern Himalayas. It is bounded by Tibet on the north, Nepal on the west and Bhutan on the east. West Bengal lies to its south. It is the smallest as well as the least populous state in the Union. Sikkim is strategically important for India. It lies astride the shortest route from India to Tibet.

Sikkim became a state of the Indian Union under the Constitution (Thirty-eighth Amendment) Act, 1975, which came into force with retrospective effect from 26th April, 1975, when the amending bill was originally passed by both Houses of Parliament.

Physiography. The state is entirely mountainous. About a third of the land is covered with dense forests, where sal, simbal, bamboo and other plants thrive. Some of the finest forests lie in the northern-most areas in Lachen and Lachung. Here the mountains rise to elevations of 7000 metres and more. Kanchenjunga (8579 m), the world's third highest peak, rises from this area. The forests here are inaccessible and remain for the most part unexploited.

On an average, Sikkim receives 125 cm rain. But the rainfall varies widely between various regions like sheltered valleys, foothills and high mountains. River Tista and its tributaries drain the state. Tista is a perennial river being both rain-fed and snow-fed.

Sikkim boasts of several hundred different kinds of orchids and is frequently referred to as a botanist's paradise.

The population of Sikkim is mainly made up of the Lepchas, the Bhutias and their allied clans and the Nepalese.

The Lepchas, who are believed to have come from Assam were the first settlers in Sikkim. The Bhutias came from Tibet in the 14th century. The Tsongs are a minority community. In the 18th and 19th centuries the Nepalese came into Sikkim and established themselves. And, today, they form the majority community in the state.

Administration. The state has a unicameral legislature.

Sikkim is divided into four districts.

Districts

District	Area (sq km)	Population (1981)	Headquarters
East	954	1,38,105	Gangtok
North	4,226	26,390	Mangan
South	750	75,691	Namchi
West	1,166	74,813	Gyalshing

State of Economy. The principal crops are maize, paddy, millet, wheat and barley. Orange and cardamom are the main cash crops. Other important crops are potatoes, apples and buck-wheat.

As the majority of the population depends on agriculture for livelihood, the governments at both the centre and the state have accorded high priority to agriculture. The government has set up 9 regional centres and 7 sub-regional centres for agricultural development. A number of high yielding seeds suitable to local climatic conditions have been developed. The production of seeds in government farms increased from 1590 quintals in 1979-80 to 4266 quintals in 1983-84.

The foodgrains production increased from 57,420 tonnes in 1979-80 to 84,000 tonnes in 1983. Campaigns for amendment of acidic soil and micro-nutrient application have also recorded significant progress.

The research complex of Indian Council for Agricultural Research, set up at Tadong, is doing useful research work.

Sikkim's tea estate at Temi and Kewzing extends over an area of 500 acres. Tea is exported to USSR and West Germany. A coffee plantation has also been started at Majitar on an experimental basis with commendable results.

Sikkim as a whole has been declared industrially backward.

The main industrial units are the Food Preservation Factory at Singtam, Sikkim Tanneries Ltd. at Majitar, Sikkim Flour Mills at Tadong, Sikkim Distilleries at Rangpo and HMT watch assembly unit (Sikkim Time Corporation).

In 1982 Sikkim Time Corporation (SITCO) broke its own record by assembling 3.00 lakh watches. SITCO now proposes to manufacture a million watches every year in technical collaboration with HMT.

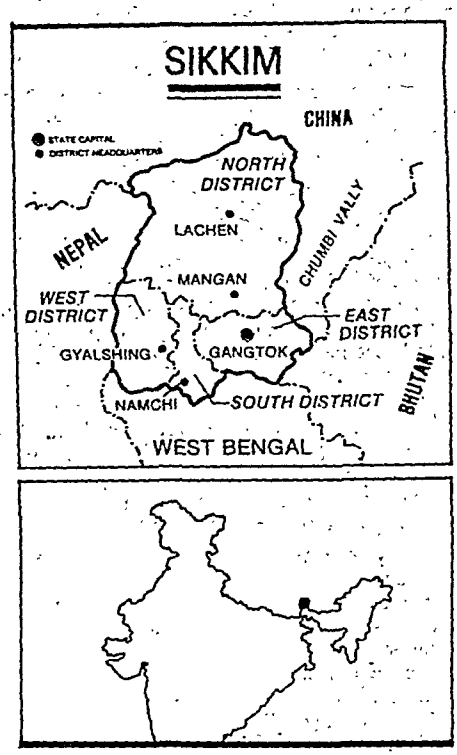
The Rs. 50-lakh Roller Flour Mill set up at Tadong has added an extruder food processing plant since 1983 to produce meals of higher nutritive value for school children under a programme sponsored by UNICEF.

Tourist Centres. Tourism in Sikkim has received a big boost in recent years. One of the most significant developments is the opening of the route from Pemayangtse to Yuksam and from Yuksam to Dzongri for domestic tourists. Rules and regulations governing grant of inner line permits to foreigners have been simplified.

Under a crash programme of creating more accommodation for tourists, a 78-bed tourist hotel at Gangtok and a 50-bed tourist lodge at Pemayangtse in West Sikkim have been constructed. Private hotels have been encouraged to expand hotel accommodation by arranging loans for them at low rates of interest.

With the opening of a Tourist Information Centre in Siliguri (West Bengal), tourists have no longer to go to Darjeeling for getting permits for visiting Sikkim. Tourist Information Centres have been set up also in New Delhi and Calcutta.

The newly opened 'Blue Sheep' restaurant, at the Tourist Information Centre premises meets a long-felt need for a standard restaurant with Indian, Chinese and continental cuisines. One more restaurant-cum-lodge is proposed to be set up at Rumtek Dharma Chakra Centre.



Governor: T. V. Rajeshwar. **Chief Minister:** N. B. Bhandari (Sikkim Sangram Parishad).

TAMIL NADU

Area: 130,058 sq km; **Capital:** Madras; **Population:** 48,408,077; **Language:** Tamil; **Literacy:** 45.78%.

Tamil Nadu is situated on the south eastern side of the Indian peninsula. It is bounded on the east by the Bay of Bengal, in the South by the Indian ocean in the west by the Arabian Sea and the States of Kerala and Karnataka, in the north by Karnataka and Andhra Pradesh. It is the eleventh largest state in India and occupies 4 per cent of the country's total area.

Physiography. The land mass of the state can be divided into two natural divisions; (i) the eastern coastal plain and (ii) the hilly region along the north and the west. The coastal plain is usually sub-divided into (a) the Coromandel plain comprising the districts of Chingleput, South Arcot and North Arcot, (b) the alluvial plain of the Kaveri delta extending over Thanjavur and part of Tiruchirapalli districts and (c) the dry, southern plains in Madurai, Ramanathapuram, Kamaraj, Anna, Kanyakumari, Pasum Pon Muthuramalingam and Triunelveli Districts.

Along the whole length of the western part at a distance from the sea varying from 80 to

160 km runs the range of the Western Ghats, a steep and rugged mass averaging 1220 metres above the sea level and rising to 2440 metres at the highest point. The Palghat Gap about 25 km in width is the only marked break in the great mountain wall. To the south of this gap, the range is known as Anamalai (Elephant Hills).

On the east are the Palani Hills on which is situated the famous hill station Kodaikanal. The slopes of the Western Ghats are covered with heavy evergreen forests. These slopes are the sources of the rivers Kaveri, Vaigai and Tamaraparni. The Nilgiris and the Anamalai are the hill groups with the maximum height.

In the famous Ootacamund area of the Nilgiris District, is the highest peak Doddabetta, 2640 metres above the sea level. The so-called Eastern Ghats begin in Orissa and pass through Ganjam district of Orissa and run south west through all the districts lying between Ganjam and Nilgiris plateau.

The rivers of the state flow eastward from the western ghats and are entirely rain-fed. The perennial rivers are:- Palar, Cheyyar, Ponnaiyar, Kaveri, Meyar, Bhavani, Amaravati, Vaigai, Chittar and Tamaraparni. The non-perennial rivers are the Vellar, Noyil, Siruliar, Gundar, Vaipar, Valparai and Varshali. The 760-km-long Kaveri is the great river of the state. Rising on Brahmagiri, a hill in Coorg in the Western Ghats, almost near the Arabian Sea, it travels the entire breadth of the peninsula and forms a large delta at its mouth in the Thanjavur District before flowing into the Bay of Bengal.

History. Tamil Nadu has a very ancient history that goes back some 6000 years. The state represents the nucleus of Dravidian culture in India, which antedated the Aryan culture in India by almost a thousand years. It is generally held that the architects of the Indus Valley Civilizations of the 4th millennium BC were Dravidians and that at a time anterior to the Aryans, they were spread over the whole of India. With the coming of the Aryans into North India, the Dravidians appear to have been pushed into the south, where they have remained confined. Tamil Nadu with the other southern states, Andhra Pradesh, Karnataka and Kerala, today form the repositories of the Dravidian Culture

The Dravida country of which modern Tamil Nadu formed a part, was reputedly under three dynasties, Chola, Pandya and Chera from the 4th century BC. The Cholas occupied the present Thanjavur and Tiruchirappalli Districts and surrounding territories and excelled in military exploits. In the 2nd century BC a Chola Prince, Elara, conquered Ceylon (Sri Lanka). The Pandyas excelled in trade and learning. They controlled the districts of Madurai and Tirunelveli and part of South Kerala. A Pandiyan King sent an embassy to the Roman Emperor Augustus in the first century BC. The Cheras were powerful on the west coast in what is, today, Central and North Kerala.

The Pallavas of Kanchi rose to prominence in the 4th century AD and dominated the south for another 400 years. In the sixth century they overran the Chola dominions and carried their arms as far as Ceylon (Sri Lanka) The famous Alvars and Nayanars, sage-poets, flourished during the Pallava era. In the 9th century the last of the Pallavas was defeatd by the Cholas who again became a great power in the south.

In the 13th century the Pandyas became dominant. Their Kingdom was a great centre of international trade The rise of Vijayanagar spelt the decline of the Pandyas They were ultimately defeated by Vijayanagar, and their territories were annexed to the Vijayanagar Empire With the disintegration of the Vijayanagar Empire, Tamil Nadu was parcelled out among several petty kings.

The rise of the Muslim power in India has had its impact on Tamil Nadu, but by and large, Tamil Nadu remained unaffected by the political convulsions in north and [illegible] India With the establishment of the [illegible] Company at Madras in 1639, a new [illegible] opened in the history of Tamil Nadu. [illegible] but steadily, the whole of Tamil Nadu [illegible] most of South India came under [illegible]

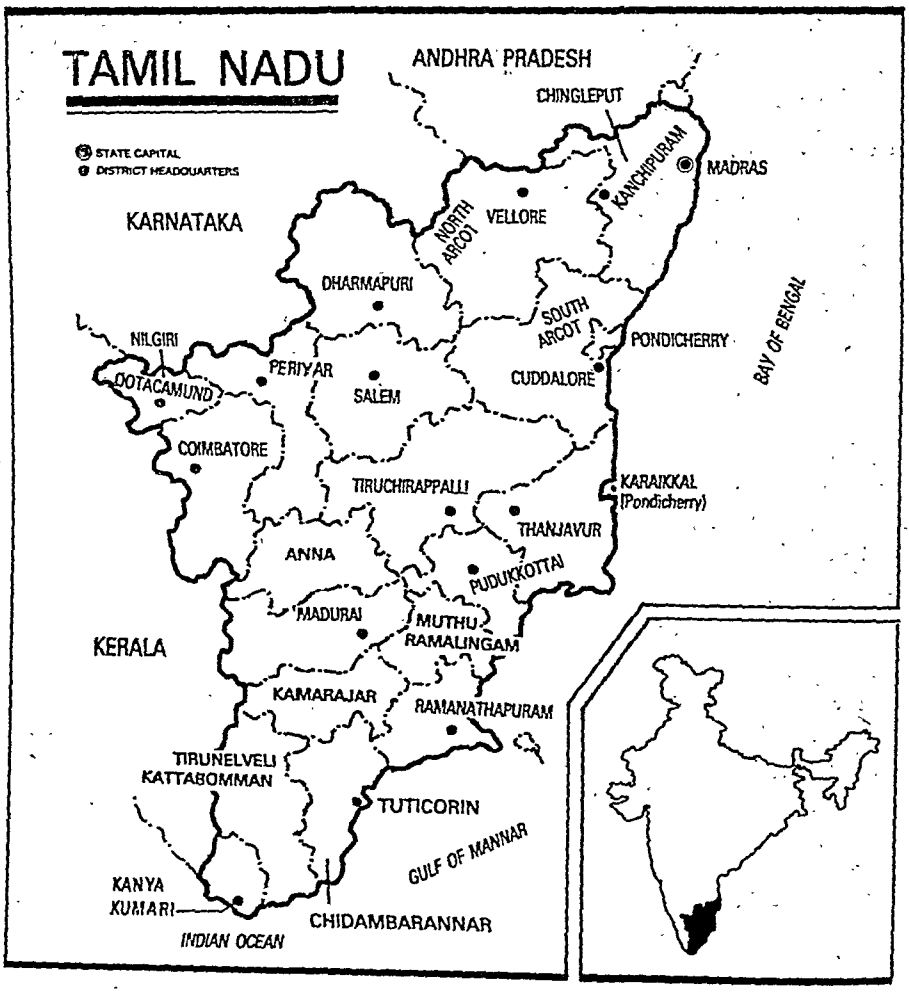
When India became free [illegible] province comprising Tamil Nadu [illegible] Pradesh and part of Kerala [illegible] state of Madras. But the [illegible] Andhra state compelled [illegible] India to bifurcate the State [illegible] States, Andhra Pradesh [illegible] speaking areas and [illegible] areas. The old [illegible] by the new Madras [illegible]

Under the [illegible]

Madras lost the Malabar District and the Kasargod taluk of S. Kanara District to the newly formed state, Kerala, while Madras gained four taluks of the Trivandrum District and Shencotta taluk of the Quilon District from Kerala. The four taluks thus gained were constituted into a new district of Madras as the Kanyakumari District. The new Mysore State (Karnataka) absorbed some parts of the old S. Kanara District (excluding Kasargod taluk) and the Kollegal taluk of the Coimbatore District. In April 1960, 405 sq miles of Chittoor District in Andhra Pradesh was transferred to Madras in exchange for 326 sq miles from Chingleput and Salem Districts.

On Jan. 14, 1969, Madras State changed its name to Tamil Nadu. However, the capital city is still known by its old name, Madras.

Administration. The legislature consists of one house - the Legislative Assembly. The



Legislative Council was abolished in 1986.

The state is divided into 20 districts.

Districts

District	Area (sq km)	Population 1981	Headquarters
Chengalpattu	7920	3616508	Kancheepuram
Coimbatore	10873	3060184	Coimbatore
Dharmapuri	9643	1997060	Dharmapuri
Kanyakumari	1684	1423399	Nagercoil
Madras	128	3276622	Madras
Madurai	6558	2971489	Madurai
Anna	5836	156448	Dindigul
Nilgiris	2549	630169	Ootacamund
N. Arcot	12265	4414324	Vellore
Periyar	4800	2068462	Erode
Pudukkottai	4137	1156813	Pudukkottai
Ramanathapuram	4217	1021764	Ramanathapuram
Kamaraj	4175	1340907	Virudhunagar
Pon Muthuramalingam	4186	972766	Sivagangai
Salem	8643	3441717	Salem
S. Arcot	10898	4201869	Cuddalore
Thiruchirappalli	11208	3612320	Thiruchirappalli
Thanjavur	8670	4063545	Thanjavur
Tirunelveli	11433	3573751	Tirunelveli
*Chidambarannar	—	—	Tuticorin

* Chidambarannar Dt. was carved out of Tirunelveli Dt. in September, 1986.

State of Economy. Agriculture is the mainstay of Tamil Nadu's economy. The yield of rice amounting to 2.5 tonnes per hectare is among the highest in India. At the end of the 6th Plan, Tamil Nadu achieved a production level of 69.17 lakh tonnes of rice and other cereals, 3.42 lakh tonnes of pulses and 13.42 lakh tonnes of oil seeds.

Tamil Nadu's sugar-cane yield of 100 tonnes per ha is a world record. About 3.5 lakh acres have sugar cane grown on them. Cotton is grown 2.8 lakh ha.

The principal plantation crops are tea and coffee.

Tamil Nadu accounts for nearly one fourth of the spinning capacity in India, one fifth of cement, caustic soda and nitrogenous fertilisers and one tenth of the nation's production of sugar, bicycles and calcium carbide. Tamil Nadu produces 60% of safety matches and 77% of finished leather.

The Tamil Nadu Industrial Development Corporation (TIDCO), State Industries Promotion Corporation of Tamil Nadu (SIPCOT) and TIIC are the major Corporations set up to provide financial assistance and technical knowhow to large, medium and small scale industries. With the aid of these Corporations, industrial complexes called growth centres and industrial estates have been provided in different parts of Tamil Nadu – Hosur, Ranipet, Guindy, Ambattur, Karaikudi, Sivaganga, Paramakudi and Tiruchirappalli.

Tourist Centres. Tamil Nadu Toursim Development Corporation runs a chain of 17 hotels, 1 Beach Resort and 10 Youth Hostels.

It has also constructed Boat houses at Muthukkadu, Ootty, Pichavaram and Yercaud.

Hill Stations: Uthagamandalam (Ootty), Kodaikanal and Yercaud.

Religious Places: Suchindram, Rameswaram, Tiruchendur, Madurai, Palani, Tiruchirapalli, Srirangam, Thanjavur, Kumbakonam, Nagore, Velankanni, Vaitheeswaran Koil, Chidambaram, Tiruvannamalai, Kancheepuram, Tiruttani and Kanyakumari.

Tourist Centres: Mamallapuram, Poompuhar, Pitchawaram, Point Calimere, Courtallam, Hogenakkal, Anamalai Sanctuary, Mudumalai Sanctuary, Vedanthangal Bird Sanctuary, Kalakkad and Vandaloor Zoo and Mundathurai Sanctuary.

At Madras: Fort St. George, Fort Museum, Marina Beach, Snake Park, Guindy Park, Guindy Deer Sanctuary and Children's Park, Egmore Museum, Valluvarkottam Park, Crocodile and Vandaloor Zoo, Muthukkadu Boat House.

Governor: S. L. Khurana. **Chief Minister:** M. G. Ramachandran (AIADMK).

TRIPURA

Area: 10,486 sq km; **Capital:** Agartala; **Population:** 2,053,058; **Languages:** Bengali, Kakbark and Manipuri; **Literacy:** 41.58%.

Tripura is the second smallest state in

was formally declared a Union Territory on November 1, 1957 and elevated to the status of a full-fledged state on January 21, 1972.

Physiography. Tripura is surrounded by Bangladesh on all sides, except for a narrow neck in the north-east, where it borders on Assam and Mizoram.

History. Tripura was a Hindu state of great antiquity having been ruled by the Maharajas for 1,300 years before its accession to the Indian Union on October 15, 1949. With the reorganization of states on Sept. 1, 1956 Tripura became a union territory. The territory was made a state on January 21, 1972.

Administration. The Legislature has a single chamber—the Legislative Assembly. The jurisdiction of the Guahati High Court extends over Tripura, with a bench functioning at Agartala.

Tripura is divided into three districts, 10 administrative sub-divisions, 177 tashils and 5215 villages

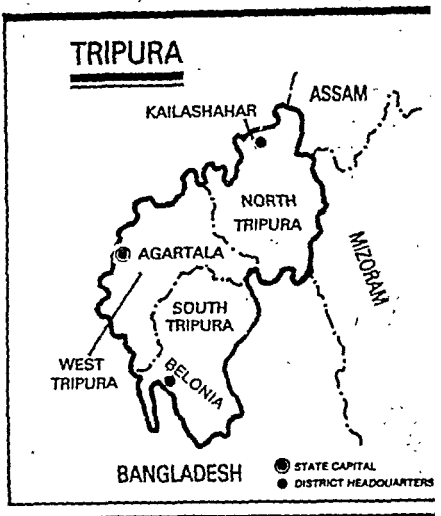
Districts

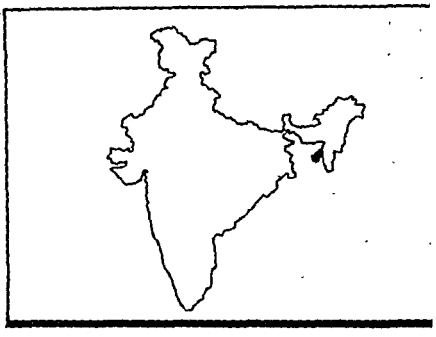
District	Area (sq km)	Population
North Tripura	3,541	5,41,248
West Tripura	3,359	9,76,252
South Tripura	3,577	5,35,558

State of Economy. About 54.5% of the land is under forest. Only about 24.3% area is available for agricultural use. The principal crops are paddy, wheat, jute, mesta, sugarcane, potato and oil seeds. Agriculture is being practised in about 2.5 lakh ha. Overall production of cereals decreased by about 2 1% in 1984-85.

Tea is a major industry in Tripura. There were 49 registered tea gardens covering an area of 5.527 lakh hectares and producing 45 lakh kg of tea per year. This industry has been employing about 10,000 workers. Three Workers' Co-operative Societies have been formed for tea plantations. Tripura Tea Development Corporation, a Government of Tripura undertaking, has also started new plantations under the programme for bringing additional land under tea plantation in the state.

The jute mill set up in Agartala under the public sector produces about 20 tonnes of jute products per day and it employs about 2,000 persons.





The major small scale industries which are functioning in the state are aluminium utensils saw mill, steel furniture, carpentry, dry battery pharmaceuticals, rice mill, washing soap, R.C.C spun pipes, PVC pipes, flour mill, aluminium conductors, leather goods, polythene pipe, plywood, fruit canning, candle, oil mills, etc.

Handloom is the single largest industry in the state. Weaving is essentially a tribal household industry. Nine pilot centres are running in different parts of the state for imparting training in improved techniques and producing quality handloom goods. Tripura Handloom & Handicrafts Development Corporation sells their products. Apex Weavers' Society caters to the needs of about 50 Primary Weavers Co-operative Societies. The organizations have been

marketing products worth Rs. 3 crore a year on an average. About 7000 weavers have been getting benefits.

The sericulture industry in the state is developing fast. The area under cultivation of mulberry is about 1200 acres and production of cocoon is estimated to be 5000 kg per year. A design centre on handicrafts is functioning at Agartala. About 5000 craftsmen are now engaged in production of handicrafts (mainly cane and bamboo) products.

Tourist Centres. Important tourist centres are Nirmahal, Sipahijala, Dumboor Lake, Kamalasagar, Jumpui Hill, Unakoti and Matabari.

Governor: Gen. K. V. Krishna Rao (Retd.).
Chief Minister: Nripen Chakraborty (CPI(M).

UTTAR PRADESH

Area: 2,94,411 sq km; **Capital:** Lucknow; **Population:** 11,08,62,813; **Language:** Hindi; **Literacy:** 27.38%.

Uttar Pradesh is the most populous state in India. In area, it ranks fourth, after M.P., Rajasthan and Maharashtra. It covers about 9 per cent of the total area of India.

Physiography. Uttar Pradesh is bounded by Tibet and Nepal in the north, Himachal Pradesh in the northwest, Haryana in the west, Rajasthan in the southwest, Madhya Pradesh in the south and southwest and Bihar in the east.

Uttar Pradesh can be divided into three distinct regions: (1) northern mountains, (ii) southern hills and plateau and (iii) the Ganga plain.

1. The lofty Himalayas embraces Uttar Kashi, Chamoli, Pithoragarh, Tehri-Garhwal, Garhwal and Almora districts, Nainital tehsil of Nainital district and Chakrata tehsil and a part of Dehra Dun tehsil of Dehra Dun district in the north, covering about one-sixth of the total area of the state.

2. This region covers almost the whole of Jhansi, Jalaun, Hamirpur and Banda districts, the Meja and Karchhana tehsils of Allahabad district, nearly the entire Mirzapur district south of the Ganga river and the Chakia tehsil of Varanasi district. The altitude in this area does not generally exceed 300 metres above mean sea level.

3. Between the Himalayas in the north and the hills and plateau in the south lies a vast homogeneous alluvial plain, one of the largest in the world. Because of the deep alluvium strata the region is almost devoid of minerals, which partly accounts for the very insignificant industrial development of U.P. On the other hand, its high fertility has led to heavy pressure of population on land.

The state has a tropical climate except for the Himalayan region which has a temperate climate.

The main rivers of the state from west to east are the Yamuna, Ganga, Ramganga, Gomati and the Ghhaghara. All the rivers, except the Gomati, emerge from the Himalayas. The Yamuna and the Ganga flow from north-east to south-west in their upper mountainous courses, from north to the south in western parts of the state and thereafter from north-west to south-east, joining at Allahabad.

History. Uttar Pradesh has a very ancient and colourful history. Although the state does not find mention in the Rig Veda, it is recognised in the later vedic age as Brahmarshi Desa or Madhya Desa. Many of the great sages of the Vedic times like Bharadwaja, Yajnavalkya, Vasishta, Viswamitra and Valmiki appear to have flourished in U.P. Many sacred books of the Aryans were also composed here. Varsha Purana, for example, is associated with Mathura.

The two great epics of India, the Ramayana and the Mahabharata, appear to have been inspired by U.P. The Ramayana features the royal family of Kosala and the Mahabharata centres round the royal family at Hastinapura, both in Uttar Pradesh.

In the 6th century BC, UP was associated with two new religions, Jainism and Buddhism. Mahavira, the founder of Jainism, is said to have breathed his last at Doora in U.P. It was at Sarnath, again in U.P., that the great Buddha preached his first sermon and laid the foundations of his order. In the post-Buddhist perod several centres in UP, like Ayodhya, Prayag, Varanasi and Mathura became reputed centres of learning. Sri Sankaracharya, the great Hindu reformer established one of his ashrams at Badrinath in U.P.

In the mediaeval period UP passed under Muslim rule and led the way to a new synthesis of Hindu and Islamic cultures. Ramananda and his Muslim disciple Kabir, Tulasidas and Birbal and many other intellectuals contributed to the growth of Hindi and Urdu. Urdu remains the perfect synthesis of Hindu and Muslim cultures.

Uttar Pradesh kept up its intellectual leadership under the British administration. The British combined Agra and Oudh into one province called the United Provinces of Agra and Oudh. The name was shortened to United Provinces in 1935. After independence in January, 1950, the United Province was renamed Uttar Pradesh.

Administration. The state has a bicameral legislature—the Legislative Assembly and the Legislative Council.

The state is divided into 57 districts as under. Kanpur district was bifurcated into Kanpur (Urban) and Kanpur (Rural) districts with effect from April 23, 1981.

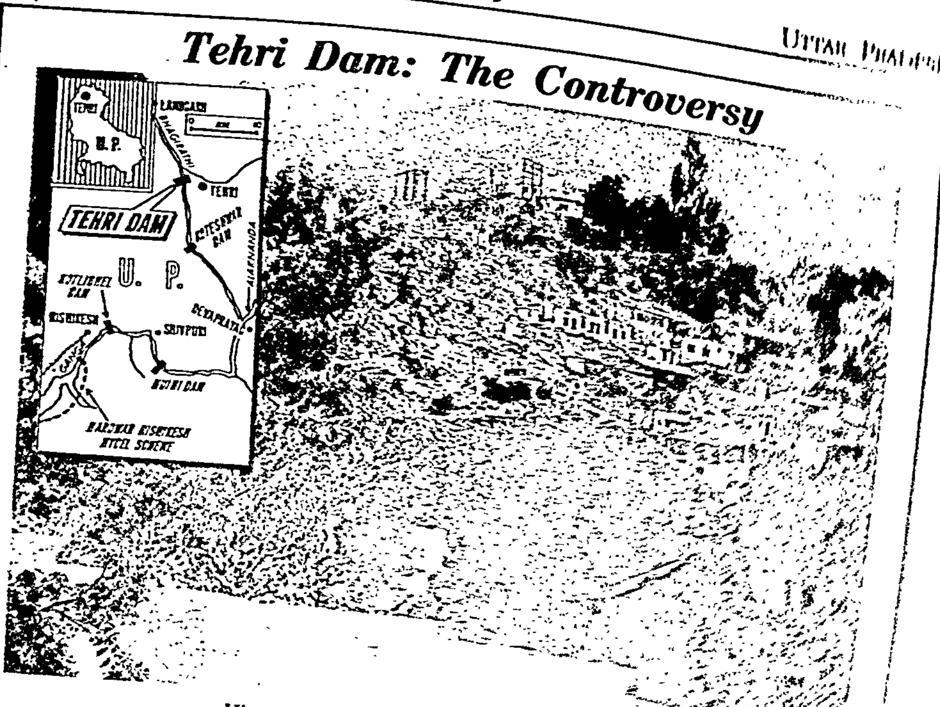
Districts

Districts	Area (sq km)	Population (1981 census	Head-quarters
Agra	4,805	28,52,942	Agra
Aligarh	5,019	25,74,925	Aligarh
Allaha-bad	7,261	37,97,033	Allahabad
Almora	5,385	7,57,373	Almora
Azam-garh	5,740	35,44,130	Azamgarh
Bahraich	6,877	22,16,245	Bahraich
Ballia	3,189	19,45,376	Ballia
Banda	7,624	15,33,990	Banda
Bara-Banki	4,401	19,92,074	Bara-Banki
Bareilly	4,120	22,73,030	Bareilly
Basti	7,228	35,78,069	Basti
Bijnor	4,848	19,39,261	Bijnor
Budaun	5,168	19,71,946	Budaun
Bulands-hahr	4,352	23,58,270	Buland-shahr
Chamoli	9,125	3,64,346	Chamoli
Dehra Dun	3,088	7,61,668	Dehra Dun
Deoria	5,445	34,96,564	Deoria
Etah	4,446	18,58,692	Etah
Etawah	4,326	17,42,651	Etawah
Faizabad	4,511	23,82,515	Faizabad
Farru-khabad	4,274	19,49,137	Fatehgarh
Fatehpur	4,152	15,72,421	Fatehpur
Garhwal	5,440	6,37,877	Pauri
Ghazipur	3,377	19,44,669	Ghazipur
Ghaziabad	2,590	18,43,130	Ghaziab
Gonda	7,352	28,34,562	Gon
Gorakh-pur	6,272	37,95,701	Gorakhp
Hamirpur	7,165	11,94,168	Hamirp
Hardoi	5,986	22,74,929	Hard
Jalaun	4,565	9,86,238	O
Jaunpur	4,038	25,32,734	Jaunp
Jhansi	5,024	11,37,031	Jhar
Kanpur (Rural)	5,848	20,08,731	Kanp
Kanpur (Urban)	337	17,33,492	Kanp
Kheri	7,680	19,52,680	Khe
Lalitpur	5,039	5,77,648	Lalitp
Lucknow	2,528	20,14,574	Lucknc
Mainpuri	4,343	17,26,202	Mainpu
Mathura	3,811	15,60,447	Mathu
Meerut	3,911	27,67,246	Meer
Mirzapur	11,310	20,39,149	Mirzap
Morada-bad	5,967	31,49,406	Moradab
Muzaffar-nagar	4,176	22,74,487	Muzaffa nag
Naini Tal	6,794	11,36,523	Naini T
Pilibhit	3,499	10,08,312	Pilibh
Pithora-garh	8,856	4,89,267	Pithoragar
Pratap-garh	3,717	18,01,049	Pratapgar
Rae Bareli	4,609	18,86,940	Rae Bare
Rampur	2,367	11,78,621	Rampu
Saharan-pur	5,595	26,73,561	Saharanpu
Shahja-hanpur	4,575	16,47,664	Shahj hanpu
Sitapur	5,743	23,37,284	Sitapu
Sultan-pur	4,436	20,42,778	Sultanpu
Tehri-Garhwal	4,421	4,97,710	Narendr nag
Unnao	4,558	18,22,591	Unna
Uttar-kashi	8,016	1,90,948	Uttarkash
Varanasi	5,091	37,01,006	Varana

State of Economy. U.P. is the largest producer of food-grains and oilseeds in the country. It leads all the states in India in the production of wheat, maize, barley, gram, sugarcane and potatoes.

Among food crops, wheat, rice, gram, maize and barley are important in the state. The production of wheat was 160 lakh tonnes during 1986-87, while barley touched the target of 7.60 lakh tonnes. All in all, U.P. produces about 20.6 per cent of the country's total foodgrains.

Tehri Dam: The Controversy



Historic Tehri [illegible]

The massive Tehri Dam proposed [illegible] built across the Bhagirathi river [illegible] Garhwal hills in Uttar Pradesh [illegible] leashed fierce controversy between [illegible] government and environmentalists. [illegible] Rs.2400 crore project is opposed [illegible] Tehri Dam Virodhis Sangharsh Samiti [illegible] supported by the Indian National [illegible] Art and Cultural Heritage (INTACH) [illegible] the World Wildlife Fund (India).

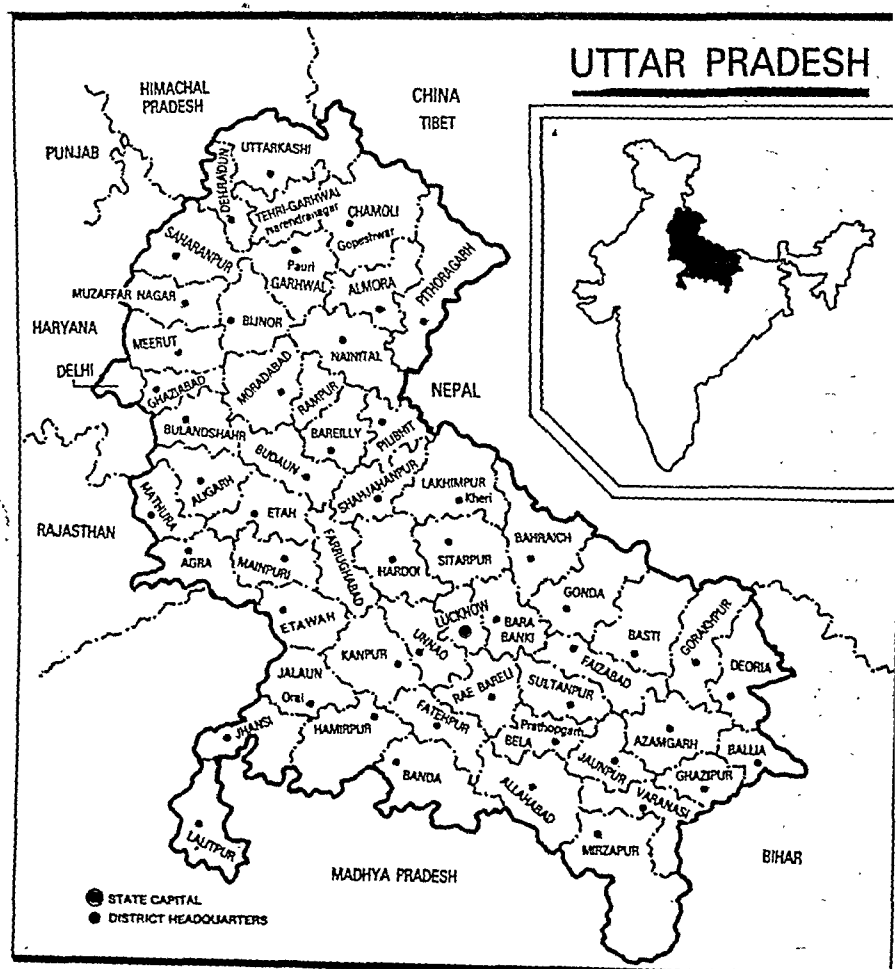
Calling the project a [illegible] disaster, the protesters argue [illegible] lead to unprecedented [illegible] only in areas around the [illegible] also in thickly populated [illegible] Rishikesh and Hardwar [illegible] stream. "It is technically [illegible] gically a blunder, economically [illegible] and environmentally [illegible]" [illegible] petition submitted by the Samiti [illegible] superme court. It pleaded for [illegible] ate abandonment of the project [illegible] life and environment [illegible] ecosystem of the Tehri-Garhwal [illegible] be protected.

[illegible]

Among cash crops, production of rapeseed and mustard was more than 11.73 lakh tonnes. The state produces about one-half of the total sugarcane output in the country. During the year 1986-87, the state produced 68,000 thousand bales of jute.

Until recently the organized industrial sector of U.P. was confined to agro-based industries such as sugar, cotton textiles, edible oils, miscellaneous food preparations, paper, e However, of late, electricity generation, ra road equipment, electrical machinery, basic i dustrial chemicals, aluminium and cement fa tories have sprung up.

Sugar, cotton textiles and miscellaneo food preparations (mainly comprising edib oils including hydrogenated oils) are the thre important industries in the large scale sector.



Till March, 1984, 4,053 industrial licences, ;tters of intent and DGTD registration were ;sued with an investment of Rs. 78,340 million.

Production in Kajrahat cement factory in Mirapur district has already started. Auto tractors, ratapgarh, have started commercial producon of 'Pratap-284' model tractor. Leather inustry also is fast coming up. As many as ,10,710 small scale industries had been estabshed by the end of the Sixth Plan period. Durıg 85-86 16584 units and during 86-87 18,893 nits were setup.

By the end of 86-87, there were 1,46,187 mall scale industries with an investment of Rs. 830 crore. These had an employment potenal of 11,02,295 persons.

Handloom industry meets nearly one-third f the total requirement of cloth in the state.)uring the year 1986-87, the production of andloom cloth was 640 million metres.

A sizing plant with an intake capacity of 0.58 ıillion kilograms and costing Rs. 2.75 million ; being set up at Kashipur. Five spinning mills, aving a total of 25,000 spindles, are being set p, with an expenditure of Rs. 520 million. Besides, seven new co-operative spinning mills are being set up, involving an expenditure of Rs. 617 million. These units are likely to provide employment to 7,000 persons.

Tourist Centres. Uttar Pradesh has a treasure of rare scenic beauty spots, rich fauna and flora, ideal health resorts, high mountain peaks, fascinating rivers and captivating valleys.

The world-renowned Valley of Flowers, Yamunotri, Gangotri, Kedarnath, Badrinath, Hemkund, Pindari Glacier and hill resorts of rare charm, like Naini Tal and Mussoorie, Ranikhet and Almora attract ever increasing number of tourists. Places like Sravasti, Sarnath, Kushinagar, Sankisa and Kaushambi attract pilgrims both from within and outside the country.

Besides ancient places of pilgrimage like Varanasi, Naimisharanya, Prayag and Hardwar are also situated in the state. Places like Agra, Ayodhya, Sarnath, Varanasi, Lucknow, Mathura and Prayag have rich treasures of Hindu and Islamic architecture.

Governor: Mohammad Usman Arif. **Chief Minister:** Vir Bahadur Singh (Congress).

WEST BENGAL

rea 87,853 sq km; **Capital:** Calcutta; **Popula-ion:** 5,45,80,647; **Language:** Bengali; **Litera-y:** 40.94%.

West Bengal covers the bottleneck of India in ıe east, stretching from the Himalayas in the orth to the Bay of Bengal in the south. It is ounded on the north by Sikkim and Bhutan, n the east by Assam and Bangladesh, on the outh by the Bay of Bengal and on the west by)rissa, Bihar and Nepal.

Physiography. West Bengal has two natural ivisions, the Himalayan north comprising the istricts of Darjeeling, Jalpaiguri and Cooch Bear and the alluvial plain that lies south of it.)arjeeling, the nothernmost district has a maxnum elevation of 3658 m above the sea level. he Jalpaiguri and Cooch Behar districts are ow-lying areas watered by swift-flowing rivers ke the Tista, the Torsa, the Jaldhaka and the anjit. The southern part is a thickly populated evel expanse of rice fields, dotted with mango, ocount and banana gardens. This vast alluvial lain is the handiwork of many big rivers, the hief of which are the Bhagirathi and its tributaries— the Mayurakshi, the Damodar, the Kangsabati, and the Rupnarayan. The Bhagirathi, called Hooghly in its lower reaches, is itself a branch of the Ganga and provides Calcutta its link with the sea.

The entire state belongs of the high rainfall region. Rainfall varies from 1006 mm in the South Western region to 2933 mm in the northern region. However the state capital receives normal rainfall i.e. 1605 mm.

History. The old Bengal (of which W. Bengal forms a part) known as Gauda or Vanga in ancient Sanskrit literature appears to have been celebrated from the epic period. The Mahabharata refers to the King of Vanga as an ally of the Kauravas in their war against the Pandavas. Apparently at the time of Aryan penetration into the east, Vanga had a well-settled civilization and culture.

In the 3rd century B.C Bengal was part of the Mauryan Empire and from the 4th to the 6th centuries. A.D., it was under the Gupta dynasty. By about A.D. 800, Beng[illegible]had its own dynasty of independent kings [illegible]s. The Palas we[illegible]

very powerful and expanded their territories into the neighbouring countries of Bihar, Orissa and Assam.

At the height of their power they had diplomatic relations with the Indonesian king Sri Vijaya. In the 11th century, Bengal passed under the rule of a new dynasty, the Senas. The Senas who ruled from their capital at Nadia were driven out by Qutbud Din, the Sultan of Delhi and Bengal became a part of the Delhi Empire. With the death of Aurangzeb, the last of the great Mughals, Bengal became independent under its Muslim governors. Siraj Daula, the last independent Muslim ruler of Bengal, was defeated by the British at the battle of Plassey in 1757. For about seven years the British were in a sort of dual control with the successors of Siraj Daula, Mir Jaffar and Mir Kasim. In 1764 Mir Kasim was routed at the battle of Buxar and the British took over the administration of Bengal.

When Bengal was first constituted by the British as a province it was a vast area, including present-day Bihar and Orissa and extended westwards upto Agra. In 1863 Agra was detached from Bengal but Assam was added to it. In 1874 Assam was formed into a separate province.

In 1905 Lord Curzon divided Bengal into two provinces A new province called Assam and East Bengal with its capital at Dacca was carved out of old Bengal. The rest of the territory together with Bihar and part of Orissa formed Bengal. This event, known as the partition of Bengal, aroused the dormant patriotism of the Bengalis, who opposed the partition as an attempt at disintergrating Bengal. The rest of India stood by Bengal and troubles broke out.

Peace was restored in 1911,when the partition was abrogated by a declaration of King George V at the Royal Durbar in Delhi. Another change announced at the Durbar was the shifting of the capital from Calcutta to Delhi. The new Bengal did not include Assam or Bihar. It was a compact area of over 200,500 sq km.

When India became independent in 1947, Bengal was partitioned between India and Pakistan. While Pakistan's share came to be called East Pakistan, India's share was called West Bengal. In 1950 the Princely State of Cooch Behar was merged into West Bengal. The former French enclave of Chandranagore was added on Oct. 2,1954. Under the States Reorganization Act, some parts of Bihar were transferred to Bengal.

Administration. The legislature is unicameral—the Legisaltive Assembly. The state is divided into 17 districts.

Districts

District	Area in (sq km)	Population	Headquarters
Bankura	6881	2374815	Bankura
Birbhum	4550	2095829	Suri
Bardhaman	7028	4835388	Burdwan
Calcutta	104	3305006	Calcutta
Cooch Behar	3386	1771643	Cooch Behar
Darjeeling	3075	1024269	Darjeeling
Hooghly	3145	3557306	Chinsurah
Howrah	1474	2966861	Howrah
Jalpaiguri	6245	2214871	Jalpaiguri
Malda	3713	2031871	English Bazar
Midanpore	14081	6742796	Midnapore
Murshidabad	5341	3697552	Berhampore
Nadia	3927	2964253	Krishnagore
Purulia	6259	1853802	Purulia
North 24-Parganas	14136	10739439	Barasat
South 24-Parganas	5206	2404947	Alipore
W. Dinajpore			Balurghat

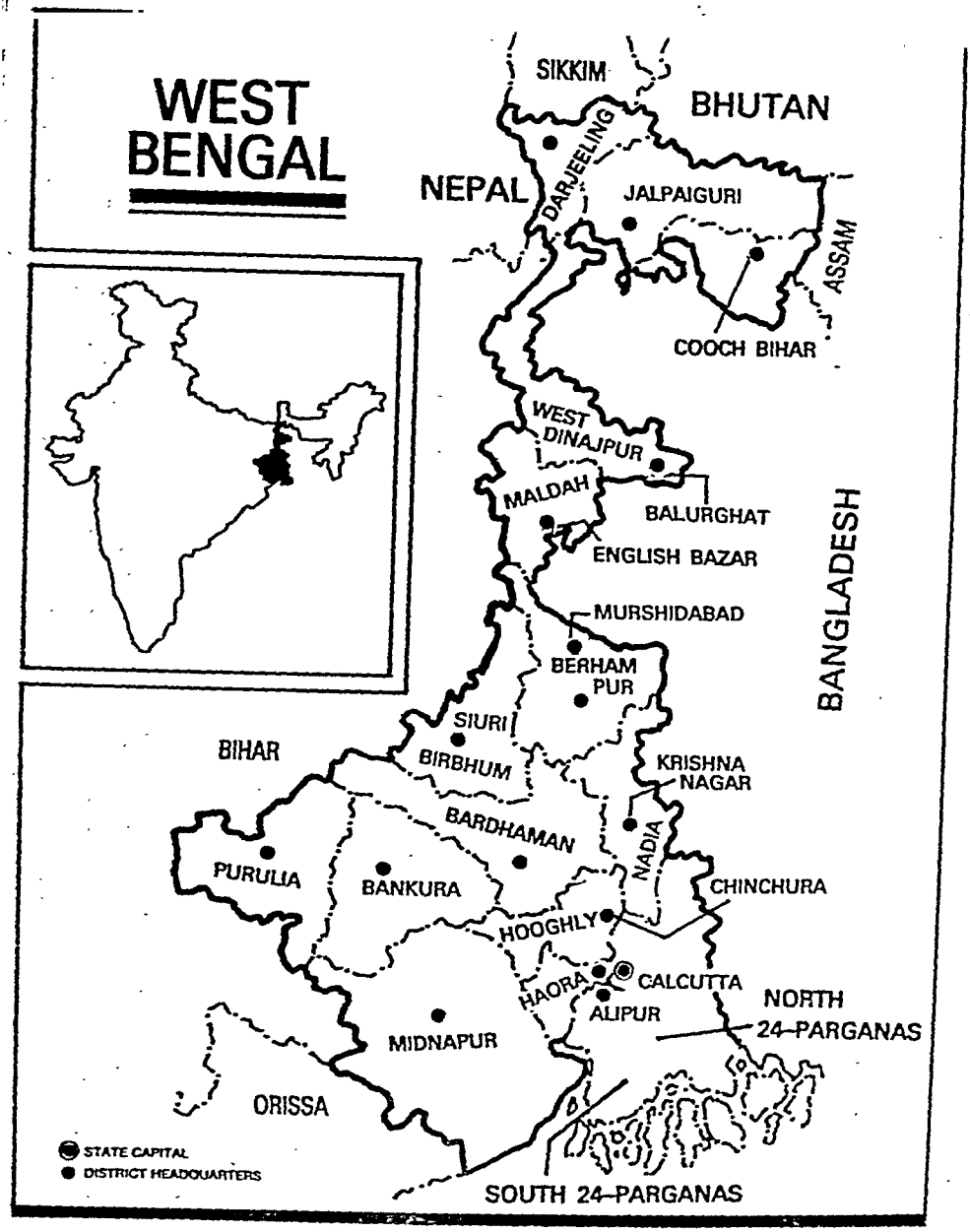
The three-tiered panchayat system is with 3305 Gram Panchayats at base, 339 Panchayat Samities at the Community Block (intermediate) level and 16 Zilla (district) Parishads at the apex. The last Panchayat election took place in May, 1983. Total number of seats at different levels stands at 55,495. The Panchayat institution acts as agencies for implementing development programmes.

State of Economy. West Bengal ranks second in rice production and fourth in national foodgrain production. Rice is one of the principal crops in West Bengal. It occupies 5078.7 thousand hectares (85-86). The state alone accounts for 6.4% of the total foodgrain production of the country (1984-85).

Among cash crops jute, mesta and tea dominate. West Bengal produces 57.3% of India's jute and mesta (84-85) and 24.2% of tea (1984) and 24.9% of potato (1984-85).

Oilseeds cover 371.0 thousand hectares (85-86) crops and contribute 15.0% of All-India production (84-85). Home production only meets a fraction of the state's requirements. Much of this commodity is imported from nearby states.

The Left Front Government of West Bengal



launched a special programme called "Operation Barga" for ensuring the rights of share-croppers through recording the name of Bargadars. The work of 'Operation Barga' is in progress along with normal settlem[illegible]k. With active help [illegible] the panchayat[illegible]

ernmet could upto March, 1985 distribute 8.03 lakh acres of vested land. About 16.14 lakh people received the land among whom about 56 per cent belonged to scheduled castes and scheduled tribes.

The production of coal in the state showed a little improvement from 19,203.0 thousand tonnes in 1984 to 19,360.0 tonnes in 1985. This improvement could have been more if power supply to the Eastern Coal Ltd. (which covers most of the coal mines in West Bengal) had been better.

Tourist Centres. Calcutta, until 1912, was the capital of the Government of India. Now, of course, it is the commercial capital of the north-eastern states of India. It is the centre of great industries like jute, tea, hides and skins, coal and lac. Places of interest are Victoria Memorial (Picture Gallery and Museum), Indian Museum, Zoological Gardens, the Jain Temple, the Kalighat Temple, Belvedere House (Originally the residence of British Viceroys when they visited Calcutta, now turned into the National Library), Raj Bhavan (Official residence of the State Governor), Marble Palace, Eden Gardens, Dalhousie Square (now renamed the Binoy-Badal-Dinesh Dakhineywar Temple and Howarh Bri

Calcutta's Tube or Metro railway is t its kind in Asia.

Darjeeling is on the Great Himalay and is one of the famous hill stations o is 592 km north of Calcutta. Places o are Government House, Town Hall, Observatory Hill, Botanical Gardens, I Park, Tiger Hill, Senchal Lake and Monastery.

Santiniketan (District: Birbhum), lo distance of 145 km from Calcutta, is t the famous Viswa Bharati University by the late Rabindranath Tagore.

Digha, the most popular beach re Midnapur district. It is 243 km from and directly connected by road.

Sunderbans in 24 Parganas is the lar forest in the world. This area, criss-cro thousands of canals, has abundance rials of interest for the tourist and wil thusiasts.

Governor: Prof. Saiyid Nurul Hasa
Minister: Jyoti Basu (CPM).

UNION TERRITORIES

1981 Census

Territory	Population	Density (per sq km)	Sex Ratio**	(pe
Andaman & Nicobar Islands	188,741 (29)*	23 (28)*	760 (31)*	5
Chandigarh	451,610 (27)	3961 (2)	769 (30)	
Dadra & Nagar Haveli	103,676 (30)	211 (14)	974 (9)	
Delhi	6,220,406 (16)	4194 (1)	808 (29)	
Daman & Diu (including Goa)	1,086,730 (22)	285 (12)	981 (5)	
Lakshadweep	40,249 (31)	1258 (3)	975 (7)	
Pondicherry	604,471 (25)	1229 (4)	985 (3)	
All India	685,184,692	216	933	

** Sex Ratio is the number of women per 1000 men. Only Kerala among states & union territories has 1034 wome All others have below 1000 women/1000 men.
* Brackets indicates ranking among States & Territories.
‡ 29th is the last rank, because figures for Assam and J & K are not included.

ANDAMAN AND NICOBAR

Area: 8249 sq km; **Capital:** Port Blair; **Population:** 1,88,741; **Languages:** Bengali, Hindi, Nicobarese, Tamil & Malayalan
cy: 51.27%

Andaman and Nicobar Islands are a group of more than 300 islands, the great majority of which (about 265) are uninhabited being too small and with little or no water. This group of islands in the Bay of Bengal may be considered the counterpart of the Lakshadweep Islands in the Arabian sea—both of them being the overseas possessions of the Indian Union.

Physiography. Andaman and Nicobar Islands are continental islands lying between 6 and 14 degrees north latitute and 92 and 94 degrees east longitude. They form two broad groups—Andamans and Nicobars which are separated by the 10 degree channel which is about 145 km wide and 400 fathoms deep. Geologically the islands appear to have been part of the land mass of south east Asia comprising north east India, Burma, Thailand, Malaysia and Indonesia.

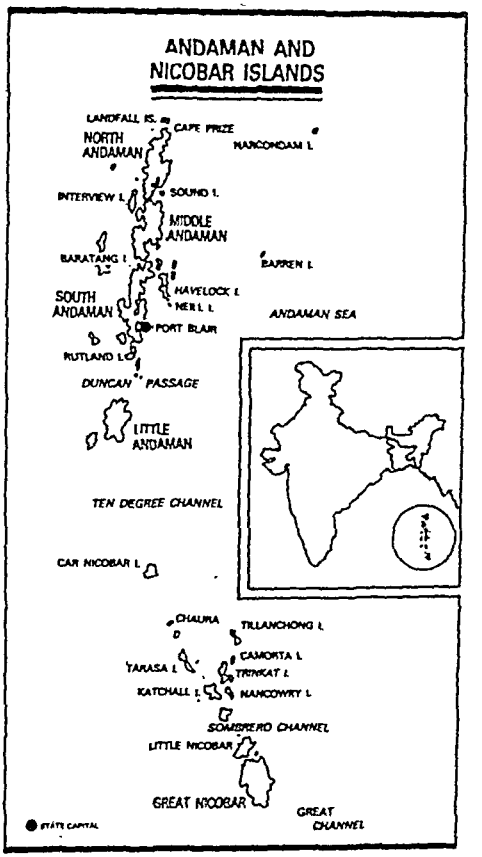
It is thought that Andamans and Nicobars are the remnants of two vast mountain ranges which, at one time, stretched from Arakan in Burma (Cape Negrias) to Sumatra (Achin Head) in Indonesia.

Port Blair, the headquarters of the Islands, is 1255 km from Calcutta (by sea), 1191 km from Madras and 580 km from Rangoon.

The Andaman Group has, at the extreme north, Land Fall Island which is about 900 km away from the mouth of the Hooghly river and about 190 km from Burma. This Island is followed by the three main islands, North Andaman, Middle Andaman and South Andaman—all of them separated from each other by shallow seas. This area is known as Great Andaman. Further south, at a distance of about 100 km from Port Blair, lies Little Andaman Island. Besides these, there is a large number of other islands in the group, many of them very small in size.

The Nicobar Group lying south of the Andamans extends from 6° to 10° north latitude. The northernmost island is Car Nicobar which lies about 120 km to the south of Little Andaman and the southernmost island is Great Nicobar barely about 150 km from Sumatra. Pygmalion Point also known as Parsons Point which has since been re-named as "Indira Point" is the southernmost tip of India and not "Kanyakumari" as is popularly known.

The important islands in this group are Great Nicobar, Car Nicobar, Chowra, Teressa, Nancowrie, Katchal and Little Nicobar.



The total area of the two groups of islands is 8249 sq km of which Andamans with 6340 sq km accounts for more than 76 per cent of the land area.

The total area of the Nicobar group of islands is 1953 sq km, the length and width being about 260 km and 58 km respectively. In this group, the Great Nicobar has the largest area of about 1045 sq km.

The climate of Andaman & Nicobar Islands is of the tropical type but the continuous breeze blowing in from the surrounding seas make it very pleasant.

History. The Andaman and Nicobar Islands, also known as the Bay Islands, had little historical importance till the advent of

European powers into India and the East in the 16th century. The Portuguese who came first were not particularly interested in these islands but they were interested in the East Indies. The Dutch who came next drove the Portuguese from the East Indies and the Bay Islands naturally came into their domain. Meanwhile, the British who had established themselves in India came into conflict with the Dutch in and round the Andamans. It did not take long for the British to drive out the Dutch and occupy the islands.

The first settlement was established in North Andamans in the year 1789. Attempts at colonisation were ultimately given up but the penal settlement survived. Then came the Revolt of 1857 in India. The British found that they had on their hands a large number of rebel convicts whom the Indian prisons of those days would hardly contain. The Andamans offered a ready-made solution. It is estimated that between 1858 and 1860 some 2000-4000 sepoy mutineers were sent to the Andamans. Many of them died under agonising circumstances.

With the British occupation of the Islands contacts with the mainland of India grew. Many Indian traders, especially from the west coast of India, established themselves as traders in the islands. Christianity also spread.

The Cellular Jail. Meanwhile, a radical change occurred in the penal system in the Andamans. At first, the prisoners were confined to barracks for the night. This system was replaced by the Cellular Jail. Here, each prisoner was confined to a cell at night. The

The Tribals of Andaman

There are 6 primitive tribes in the Andaman and Nicobar Islands of which 4 belong to the Negrito stock viz. the Andamanese, the Onges, the Jarawas and the Sentinalese and 2 of the Mongoloid origin, viz., the Nicobarese and the Shompens. Of these, the Nicobarese and the Shompens live in the Nicobar District and the other 4 tribes are found in the Andaman District. The Nicobarese are a very thriving tribe and their population now is 22,000.

The Shompens are estimated to be more than 214. Of the primitive tribes, the Andamanese and the Onges are very friendly with civilization. Periodic contacts with the Jarawas are being made and the last such contact was made on the 30th October, 1985.

When the contact team led by the Lt. Governor, M.L. Kampani, visited them at Lakra Lungha in Foul Bay (Middle Andaman), a batch of 96 Jarawas including men, women and children were present to greet the Lt. Governor and the team. They are no longer hostile to civilization although they are not very much inclined to accept the modern way of life.

Contact with the Sentinalese is also being made and the last such contact was made on 5th November, 1985. Through gestures, they seem to show signs that they are no longer hostile, as they have been painted to be.

The Administration has settled the Great Andamanese in Strait Island, a small area (6 sq km) off the eastern coast of Middle Andaman. The Jarawas inhabit a reserved forest of about 648 sq km. on the western coast of South and Middle Andaman.

The Sentinalese are the sole inhabitants of North Sentinal Island with an area of about 47 sq km south west of Port Blair.

The Onges live in Little Andaman with an area of 751 sq km. Until recently it was the exclusive home of the Onges, but now it has been opened up for settlement by others.

The Jarawas and the Sentinalese live in active isolation and are not so friendly disposed towards outsiders. The problem the primitive tribes are facing is one of survival. While some of the primitive tribes have shown inclination to accept the modern way of life, others are yet to show them. However, there is a definite trend to indicate that they want to compromise with civilization for the sake of their own survival.

construction of the Cellular Jail was taken up in 1896. The construction itself was carried out by convicts. By 1897 four hundred cells were built. In 1906, all the 7 wings of the jail containing 663 cells were completed. The prisoners, who were deported to the Andamans, were all political prisoners of one sort or another.

The constitutional reforms of 1935 necessitated a thorough revision of policy. In Sept. 1937, the first batch of prisoners left the Andamans and by Jan. 1938 all prisoners were released.

The Second World War and the consequent Japanese occupation of these islands from 1942-1945 brought the islanders a taste of foreign military occupation. After the evacuation of the Japanese in 1945, the islands, as part of India, became free on August, 15, 1947.

One beneficial result of the the Japanese occupation was the expulsion of the Indian traders, who had ruthlessly exploited the ignorant islanders. They had either fled from the islands or were killed during Japanese occupation.

After independence, the Government of India was keen that mainland traders did not return to exploit the people and destroy their culture. The Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Act was passed in 1956, under which entry into tribal areas was prohibited and no outsider could carry on trade or industry in the islands, without the licence of the Administrator. Since 1938, refugees and ex-servicemen were permitted and encouraged to settle down in the islands. Many of them have now become permanent settlers.

On November 1, 1956 the Andaman and Nicobar Islands were constituted into a Union Territory, administered by the President of India. The local administration is headed by a Lt. Governor from November 1982 onwards with his headquarters at Port Blair. In 1979 in response to a national demand, the former Prime Minister Morarji Desai dedicated the Cellutar Jail as a National Memorial.

Administration. The entire territory is delimited into 4 Sub Divisions and 7 tehsils as follows:—

Area, Sub Divisions, Tehsils

Sub Division	Tehsils in the Sub division	(in sq.km) Area
1. Mayabunder	1. Diglipur	884
	2. Mayabunder	1348
	3. Rangat	1098
2. South Andaman	1. Port Blair	
	2. Ferrargunj	3010
3. Car Nicobar	1. Car Nicobar	129
4. Nancowrie	1. Nancowrie	1824

State of Economy. The principal crops of Andaman and Nicobar Islands are rice, coconuts and arecanut. But the unscientific cultivation of these crops calls for radical improvements. Other crops are sugar-cane, pulses, fruit and vegetables. Recently it has been found that the climate is suitable for spices and rubber. Both are being tried out on the islands on a large scale.

Industries comprise saw milling, oil milling, plywood and matches. A number of training-cum-production centres have been started by the government.

Tourist Centres. Old Cellular Jail which has been declared a national monument, Anthropological Museum, Mount Harriet.

Lt. Governor: Lt. Gen. (Rtd) T.S. Oberoi.

CHANDIGARH

Chandigarh which has been a Union Territory since 1966 is to become part of the Punjab state according to the Punjab Agreement. It has been the capital city of both Punjab and Haryana where the High Court and University for both states are located. A planned modern city, it was designed by the French architect Le Corbusier.

In 1981 census Chandigarh showed a population of 4,51,610. Its area is 114 sq km.

DADRA AND NAGAR HAVELI

Area: 491 sq km; **Capital:** Silvassa; **Population:** 1,03,676; **Languages:** Bhili, Bhilodi, Gujarati and Hindi. **Literacy:** 26.6% Dadra Nagar Haveli li

coast surrounded by the states of Gujarat and Maharashtra. It consists of two pockets namely Dadra and Nagar Haveli and these two pockets are intercepted by the territory of Gujarat.

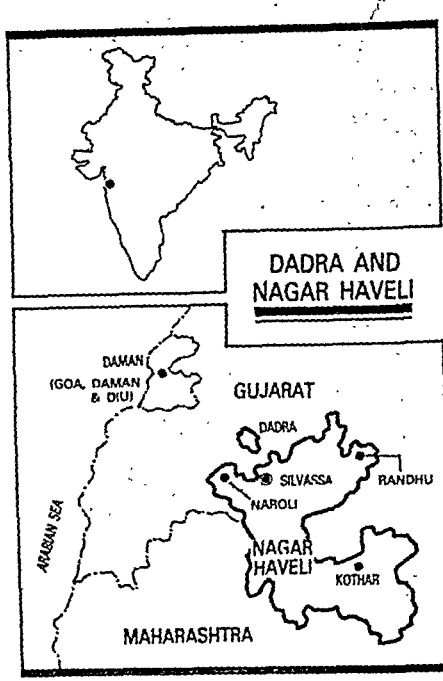
History. The territory of Dadra and Nagar Haveli was originally assigned to the Portuguese by the Maratha government in 1779 for an aggregated revenue of Rs.12,000/- in return for their friendship. The Portuguese ruled this territory till its liberation in 1954. After liberation, the administration was carried on by an Administrator chosen by the people themselves.

Probably this is the only part of the country which was ruled by the people themselves for about 8 years (1954 to 1961). On the 11th August, 1961, the territory was integrated into the Indian Union.

Administration. The territory is under the control of an Administrator. The first group Panchayats at the village level were established in 1968 and thereafter elections are being held regularly every four years.

State of Economy. Agriculture is the principal occupation of adivasis who represent 79 per cent of the total population as per 1981 census. Paddy, ragi, pulses and fruits are the major crops while wheat, vegetables and sugarcane are also cultivated. About 22,800 hectares of land is under cultivation. The Department of Agriculture has taken up several schemes to explore the production potential of this area. Area under high yielding varieties during 1986-87 is ... at 6570 hectares. A number of new commercial crop varieties are introduced. 96 per cent of the area is under dry land farming Hence, dry farming technology is used to get top yield by tapping rain water.

There are no major industries. Two industrial estates, one at Silvassa on cooperative basis and the other government - owned Industrial Estate at Masat, have been established. A new industrial estate at Khadoli is coming up. No. of



industrial units with permanent registration increased to 286 during 1986-87. There were 90 medium scale units and 37 cottage and village scale units during 1986-87. Altogether there are 236 units which produce goods to the value of Rs 55 crores.

The products manufactured include spectacle frames and flooring tiles, buckets, bread & biscuits, furniture, katha and tenin, spun pipes plastic moulded articles, chemicals, detergent powder, art silk fabrics, electrical fixtures watches, candles, tin containers, chappals, rexine cloth, foam, etc.

Administrator: Dr. Gopal Singh.

DELHI

Area: 1,483 sq km.; **Capital:** Delhi; **Population:** 62,20,406; **Languages:** Hindi, Punjabi and Urdu; **Literacy:** 61.54%.

The territory of Delhi shines with the reflected glory of a metropolis that functions as the capital of India. But beyond the confines of the metropolis and shorn of its imperial associations, this territory is better and greener.

Physiography. The territory forms an enclave inside the eastern frontier of Haryana in North India. The climate of the territory is

influenced by its inland position with the desert of Rajasthan to the west and south-west and Gangetic plains of U.P. to the east. Extreme dryness with an intensely hot summer and cold winter are the characteristics of the climate. The year can broadly be divided into four seasons. The cold season starts in late November and extends to about the beginning of March. This is followed by the hot season which lasts till about the end of June when the monsoon arrives. The monsoon continues into the last week of September. The two post-monsoon months October and November constitute a transition period from monsoon to winter conditions.

History. The city of Delhi was founded in the 11th century A.D. by a Rajput Chieftain of the Tomara clan. The Chauhans obtained possession of the the city from the Tomaras. Prithvi Raj, the Chauhan ruler of Ajmer and Delhi, made the city of Delhi famous by his heroic valour and romantic adventures. Delhi under Prithvi Raj and Kanauj under Jai Chand were the principal kingdoms of north India at that time.

The first invasion of India by Muhammud Ghori was beaten back by Prithvi Raj in the first battle of Tarain in 1191. Next year, Ghori came back to avenge his defeat and in the second battle of Tarain (1192) the Rajput army was routed. Prithvi Raj was captured and put to death. Delhi thus passed into the hands of Muslim rulers for the next six centuries. Under the Mughal Emperors, Delhi became a world famous city.

In 1857, following the mutiny of Indian troops, the British deposed the titular Emperor Bahadur Shah and formally annexed Delhi. In 1912, the capital of British India was transferred from Calcutta to Delhi. A new city—New Delhi—of imposing dimensions was laid out by the side of the old city—Old Delhi— by the British Indian Government. Independent India has retained this historic capital.

Administration. Delhi became a Union Territory on November 1, 1956. In order to enable the representatives of the people of the Union Territory a larger measure of association with developmental activities, parliament enacted the Delhi Administration Act 1966. Under this Act, Delhi has a Metropolitan Council consisting of 61 members, five of whom are nominated by the President of India.

The Lt. Governor is the Administrator. He is assisted by 4 Executive Councillors (One Chief Executive Councillor and three Executive Councillors) appointed by the President of India on the recommendation of the Union Home Ministry.

The Territory is made up of three census towns, Delhi, New Delhi and Delhi Cantt, and 214 villages. It is represented by 7 members in the Lok Sabha and 3 members in the Rajya Sabha. The territory is covered by 3 local bodies— Delhi Municipal Corporation, New Delhi Municipal Committee and Cantonment Board. The rural area of the territory falls within the jurisdiction of the Municipal Corporation of Delhi.

Delhi Units

Name	Urban/ Rural	Population 1981
New Delhi Municipal Committee	(Urban)	273036
Delhi Cantonment Board	(Urban)	85166
Municipal Corporation of Delhi	(Urban)	5409998
	(Rural)	452206

It is estimated that the population of Delhi by the middle of 1987 is around 80 lakhs.

State of Economy. In Delhi 31.93 per cent of the total population constitutes workers (1981 census). Percentage distribution of workers according to main activity revealed that cultivators constitute 1.93 per cent, agricultural labourers 0.86%, household industry 3.76% and other workers 93.45%.

Delhi ranks third in *literacy* after Kerala and Chandigarh which hold the first and second positions. Percentage of literacy in 1981 was 61.54 (68.40% males and 53.07% females).

Delhi has a total land area of 1,47,488 ha. of which 1443 ha. area is forest and 70642 ha. is not available for cultivation. Other uncultivated land excluding fallow, comes to 4626 ha.

About 91757 ha. is cultivated. Chief crops in 1984-85 (in 1000 tonnes), were: [illegible] 117, jowar and bajra 12, sugar cane

Since 1974 a large number of industrial concerns have been established. These include factories for the manufacture of razor blades, sports goods, parts for radios, bicycles station wagons and plastic and PVC goods including footwear. The number of industrial units functioning was about 65000 in 1985-86. The number of workers employed was 5,95,000, production was worth Rs.3450 crore and investment was about Rs.1260 crore.

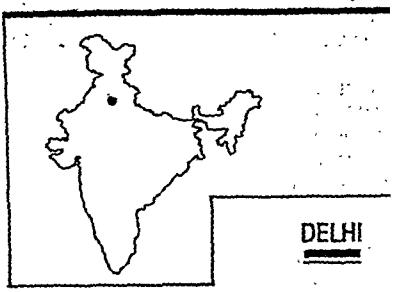
Some traditional handicrafts for which Delhi was formerly famous, still flourish. Among them are ivory carving, miniature painting, gold and silver jewellery, etc. The handwoven textiles of Delhi are particularly fine, this craft having been successfully revived.

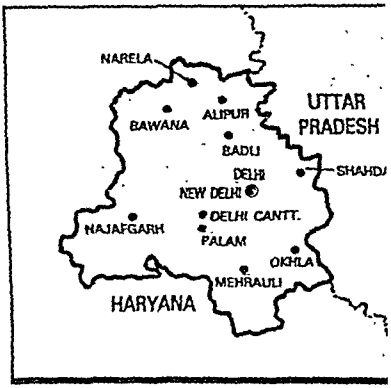
Tourist Centres. Since Delhi has been the capital of India for centuries, it is full of rich monuments. Both the Delhis -the old city of the Mughals formed by Shah Jehan and the new city constructed by the British in 1931 -preserve centres of Tourist interest.

Among them are Rashtrapati Bhavan, Mughal Gardens, Parliament Buildings, Chandni Chauk, Red Fort, Jama Masjid, Kutbat, Raj Ghat, Shantivana, Vijaya Ghat, Purana Kila (Indraprastham), Humayun's Tomb, Lodi Tomb, Qutb Minar, Haus Khas, Safdarjung's Tombs, Jantar Mantar and India Gate.

The Zoological Garden, Kashmir Gate, Birla Mandir, Vigyan Bhavan, National Museum, Cannaught Circus, Budha Jayanti park, Rabindra Rangsala and Nehru Memorial Museum are also of imprortance.

Besides, Agra, the city of Taj Mahal, Mathura





of Srikrishna legends, Tuglagabad, Suraj Lakshmi Narayan Temple, Sohna, Sult Lake, etc are also around.

Lt. Governor: H.L. Kapoor, **Chief Exec Councillor:** Jag Parvesh Chandra.

DAMAN AND DIU

Area: 112 sq km; **Capital:** Daman; **Population:** 78981; **Languages:** Marathi and Gujarati; **Literacy:** 55.86%.

Daman and Diu were separated from Goa to become an independent union territory when Goa was accorded full statehood in 1987. These three different landblocks on the west coast of India came to form one political unit after liberation from the erstwhile Portuguese regime in 1961.

Physiography: Daman lies on the Gujrat coast while Diu is an islet on the southern fringe of Kathiawar peninsula.

Daman is bounded on the north and south by the Bhagwan and the Kalem rivers r tively, on the east by the Gujarat State a the west by the Arabian Sea.

Diu, lies in the Gulf of Cambay near V Port and is separated from the sou extremity of the Saurastra Peninsula narrow channel running through a sv The island is connected with the mainlan narrow channel on the north. Daman mild and humid climate while Diu has a climate.

History. Diu was occupied by the guese in 1534. In 1559, Daman also annexed by them. The inquisition whic

established in Goa, largely contributed to the downfall of the Portuguese empire in the East.

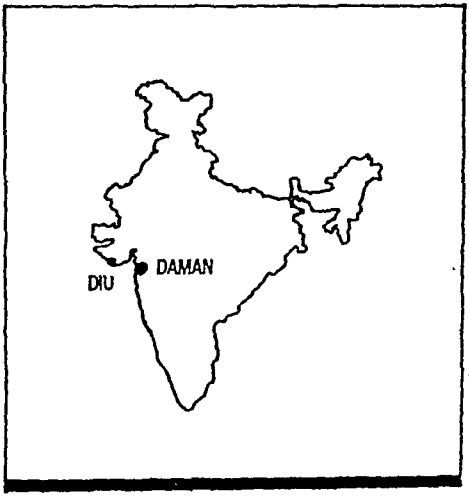
Under the Constitution (Twelfth Amendment) Act 1962, Goa was included in the first schedule to the constitution as a territory of the Indian Union. By the 57th amendment of the constitution Daman and Diu were separated from Goa to become an independent union territory.

Daman and Diu have no subdivisions. The Daman region was under the charge of a Collector while Diu is under the charge of a Civil Administrator, they were part of the former Union Territories of Goa, Daman an Diu.

Districts

District	Area (sq kms)	Population (1981) Census	Headquarters
Daman	72.0	48,560	Daman
Diu	40.0	30,421	Diu

DAMAN AND DIU



Lt. Governor: Dr. Gopal Singh.

LAKSHADWEEP

Area: 32 sq km; **Capital:** Kavaratti; **Population:** 40,249; **Language:** Malayalam; **Literacy:** 55.07%.

The tiniest Union Territory of India, Lakshadweep is an archipelago consisting of 12 atolls, three reefs and five submerged banks. Of its 36 islands covering an area of 32 sq km, only 10 are inhabited. They are Andrott, Amini, Agatti, Bitra, Chetlat, Kadmat, Kalpeni, Kavaratti (Headquarters), Kiltan and Minicoy. Bitra is the smallest of all having only a population of 181 persons (1981).

Physiography. Lakshadweep lies about 220 to 440 km from the coastal city of Cochin in Kerala between 8° and 12° 13′ north latitude and 71° and 74° east longitude. Kavaratti is its headquarters. These islands and Cochin are linked by ship, which takes about 10 to 20 hours.

Though the land area is extremely small, if we consider its lagoon area of about 4,200 sq km 20,000 sq km of territorial waters and about seven lakh sq km of economic zone, Lakshadweep is one of the largest territories of our nation.

The flora of the islands includes Banana, Colocasia, Drumstick, Bread-fruit, Jack fruit and Wild Almond. Coconut is the only crop of economic importance in Lakshadweep. These are found in different varieties such as Laccadive micro, Laccadive ordinary, green dwarf, etc. Two different varieties of sea grass are seen adjacent to the beaches. They are known as Thalassia hemprichin and Cymodocea isoetifolia. They prevent sea erosion and movement of the beach sediments.

The marine life is quite elaborate. The commonly seen vertebrates are cattle and poultry. Oceanic birds generally found are 'tharathasi' (Sterna fuscata) and 'karifetu' (Anous stolidus). They are generally found in one of the uninhabited islands known as 'Pitti'. This island has been declared a bird sanctuary.

History. Early history of Lakshadweep is not recorded. Local traditions attribute the first settlement on these islands to the period of Cheraman Perumal, the last King of Kerala. It is believed that after his conversion to Islam, at the behest of some Arab merchants slipped out of his capital Cranganore

present day Kodungalloor and an old harbour town near Cochin, for Mecca.

When his disappearance was discovered, search parties from different places left for the shores of Mecca in sailing boats in search of the King. It is believed that one of these sailing boats of the Raja of Cannanore was struck by a fierce storm and they were shipwrecked. After being tossed for many days in the Arabian Sea, they finally landed on the island now known as Bangaram. From there, they went to the nearby island of Agatti. Finally the weather improved and they returned to the mainland sighting other islands on their way. It is said that after their return, another party of sailors and soldiers were sent and they discovered the Island of Amini and started living there. It is believed that the people sent there were Hindus. Even now unmistakable Hindu social stratification exist in these islands despite Islam

There are communities who are primarily land owners (Koyas), sailors (Malmis) and cultivators (Melacheris). Legends say that small settlements started in the Islands of Amini, Kavaratti, Andrott and Kalpeni first and later people from these islands moved to other Islands of Agatti, Kiltan, Chetlat and Kadmat. This legend of Cheraman Perumal is not, however, fully substantiated.

The advent of Islam dates back to the 7th century around the year 41 Hijra Saint Ubaidulla is believed to have preached Islam to the islanders The grave of Saint Ubaidulla at Andrott is today a sacred place. Preachers from Andrott are respected deeply in far off lands like Sri Lanka, Malaysia, Burma etc

The arrival of the Portuguese in India again made Laccadives an important place for the seafarers. The finely spun coir was much sought after for ships So the Portuguese started looting Island vessels. They forcibly landed at Amini coir some time in the early 16th century to procure but it is said that the people killed all the invaders by poisoning them. The Portuguese invasion ended thus

Even after the conversion of the entire Islands to Islam, the sovereignty remained in the hands of the Hindu Rajah of Chirakkal for some more years. From the hands of the Chirakkal Raja, the administration of the islands was passed on to the Muslim house of Arakkal of Cannanore around the middle of the 16th century.

The Arakkal rule was oppressive and unbearable. Some time in the year 1783 some islanders from Amini took courage and went to Tippu Sultan at Mangalore and requested him to take over the administration of the Amini groups of islands. Tippu Sultan at that time was on friendly terms with the Bibi of Arakkal and after deliberations, the islands of Amini group were handed over to him. Thus the islands' suzerainty came to be divided five came under the sovereignty of Tippu and the rest continued under the Arakkal rule.

After the death of Tippu in the battle of Seringapattom the islands were handed over to the British East India Company and they were administered from Mangalore. In 1847, a severe cyclone hit the Island of Andrott and the Raja of Chirakkal decided to visit the islands in order to assess the damage and for distributing relief.

An officer of the East India Company Sir W. M. Robinson volunteered to accompany him. On reaching Andrott, the Rajah found it difficult to meet all the demands of the people. Sir William then offered the Raja to help him in the form of a loan. This was accepted. The arrangement continued for about four years but when the debt mounted, the English asked the Rajah to repay which he could not. In 1857 all the remaining islands were handed over to the East India Company for administration. So came the British rule

The Union Territory was formed in 1956 and it was named Lakshadweep in 1973.

Administration. Prior to the formation of this Union Territory on 1 Nov. 56, these islands formed part of the erstwhile Madras State. The entire group of islands is considered as one district and divided into four tahsils and each put in charge of a Tahsildar, except Minicoy where the post of the Tahsildar was abolished and a Deputy Collector appointed in August 1978. The lowest revenue official there was known as 'Amin' in the Laccadive group and Minicoy and 'Karani' in the Amindivi group. Now they are designated 'Amin' in all Islands.

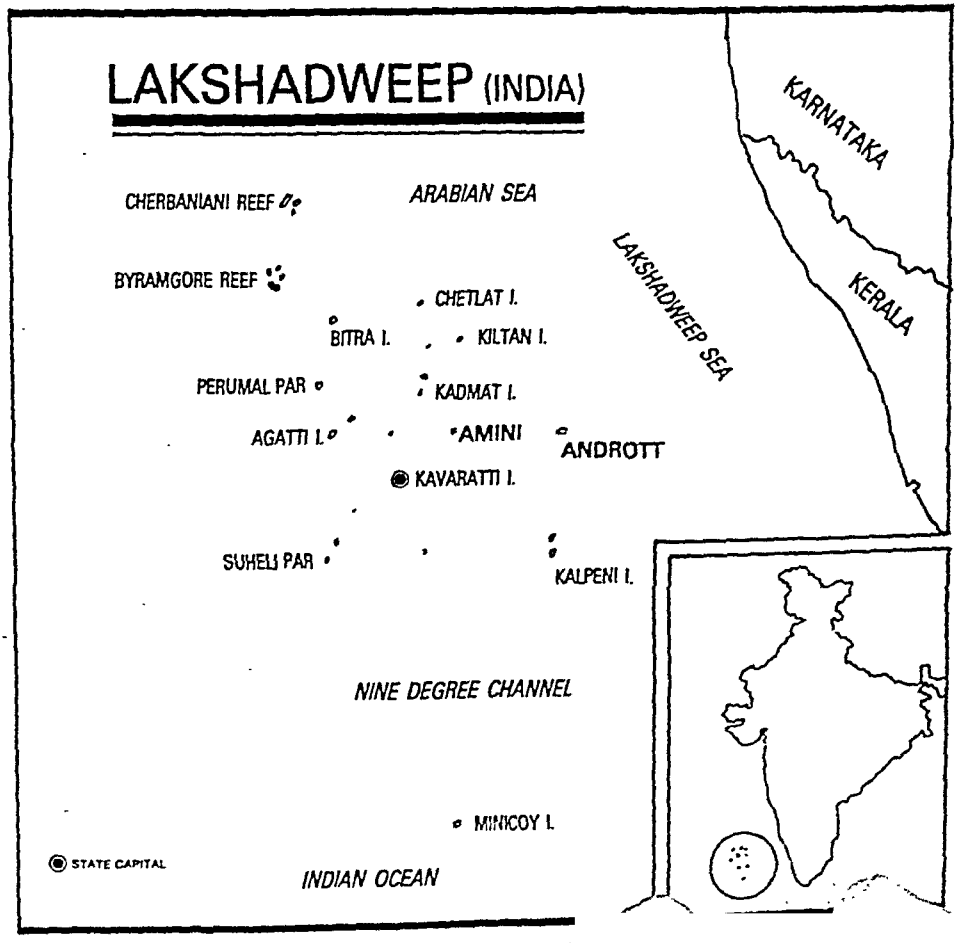
The Headquarters of the Administration was shifted from Calicut (Kerala State) to Kavaratti Island in March 1964. When the annual expenditure to be incurred by the Administration went beyond Rs. 3 crore, the necessity for decentralisation of the departments was felt and accordingly new offices were created in 1972

Area and Population

Islands (inhabited)	Area (sq km)	Population (1981 census)
Minicoy	4.4	6,658
Kalpeni	2.3	3,543
Andrott	4.8	6,812
Agatti	2.7	4,111
Kavaratti	3.6	6,604
Ameni	2.6	5,367
Kadmat	3.1	3,114
Kiltan	1.6	2,375
Chetlath	1.0	1,484
Bitra	0.1	181

State of Economy. Agriculture is the mainstay of Lakshadweep's economy. The staple products of the territory are coconuts and coir. Coconut is the main crop occupying the entire cultivable area of 2780 ha. The total palm population is 0.72 million with 0.16 million bearing trees. The average production is 8078 nuts per ha. per year with an average yield of 58 nuts per palm which is definitely higher than the average production figures of *major coconut producing countries.*

Fruit plants like banana, papaya, guava, sapota and citrus varieties and drumstick plants are cultivated in the coconut gardens as



inter-crops. Agricultural Demonstration Farms of the Administration in all islands supply vegetables to the people.

Multi-crop demonstration plots extending to a gross area of 260 ha. engaging 640 labourers are available in the islands.

The islands produce copra, coir, jaggery, vinegar and fish. Trade in coir is a monopoly of the administration and is being carried on as a welfare measure on a no-profit-no-loss basis, by bartering rice for coir. The average copra produced is about 2500 tonnes per annum, of which 2000 tonnes is sold through Calicut and Mangalore markets.

The islands have immense potential for the development of fisheries. Two boat building yards are engaged in the construction of mechanised boats. Over 331 mechanised boats are under operation in Lakshadweep waters, of which 313 were issued to the fishermen under hire-purchase system at subsidised cost. Fish catch during 1986-87 is estimated at 7488 tonnes. The canning factory at Minicoy processes Tuna fish.

The main household industry is coir making. Six coir production-cum-demonstration centres are functioning one each at Kadmat, Kiltan, Chetlat, Ameni, Agatti and Andrott.

These centres produced 41 tonnes of improved variety thinner coir yarn during 1986-87. The mechanised decorticating units at Andrott, Kadmat, Ameni and Kavaratti extracted 153 tonnes brown fibre from dry coconut husk during 1986-87. The hoisery factory at Kalpeni produced 13614 vests during this period. The Handicraft Training Centres at Kavaratti and Kalpeni are continuing to impart training to local candidates in making coral flowers, sea-shell toys, coconut shell crafts, coir crafts etc. One Furniture-Makers' Industrial Co-operative Society and one Handicraft Industrial Co-operative Society are also functioning at Kavaratti. Two Coir Co-operative societies have been started at Ameni and Kalpeni with trained local women as members.

Tourist Centres. The Development of domestic as well as international tourism has immense potential. However, much could not be achieved till recently owing to the strict entry restriction imposed on visitors from the mainland. Ministry of Home Affairs has now made some relaxation and as a result of this, international as well as domestic tourism has received a remarkable boost.

Already numerous infrastructural facilities have been created. Construction of an air-strip at Agatti, near Bangaram is receiving active consideration at the Centre. Since the literacy rate in the Union Territory is one of the highest in the country, the level of educated unemployed can be kept under control by developing this sector. Society for Promotion of Recreational Tourism (SPORTS) is a society registered under the Societies Act, 1860.

Administrator. Jagdish Sagar.

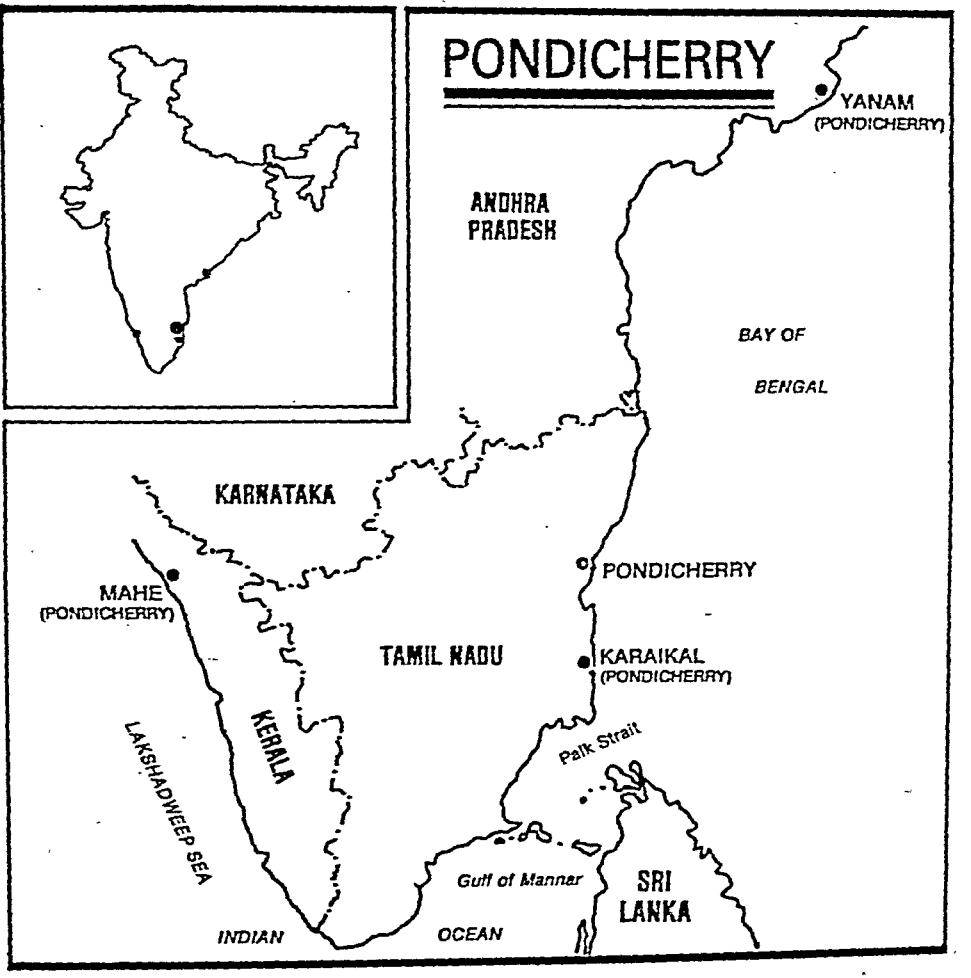
PONDICHERRY

Area: 492 sq km, **Capital:** Pondicherry; **Population:** 6,04,471, **Languages:** Tamil, Telugu, Malayalam, English and French; **Literacy:** 55.85%

Physiograpghy. The Union Territory of Pondicherry encompasses an area of only 492 sq km with Pondicherry town and its villages covering 293 sq.km surrounded by the South Arcot District, Karaikal town and its villages covering 160 sq km surrounded by Thanjavur District, Mahe and its villages covering 9 sq km surrounded by the Kerala State, and Yanam covering 30 sq km within the East Godavari District in Andhra Pradesh. While Pondicherry, the headquarters of the Union Territory, lies 162 km south of Madras and 22 km north of Cuddalore, Karaikal is about 150 km south of Pondicherry and Yanam about 840 km north-east of Pondicherry on the Andhra coast. Mahe lies almost parallel to Pondicherry, 653 km away on the west coast.

The French first established their foothold in Pondicherry in 1674; Karaikal was obtained from the King of Tanjore in 1738. Mahe was made over to the French by the ruler of Badagara in 1721. Yanam came into their possession in 1731.

Pondicherry and its surrounding enclaves lie on the drainage basin of the Gingee river. Karaikal located in the fertile Cauvery delta is



fed by the waters of Arasalar (running a distance of 11.97 km in the reigon), Natter (11.2 km), Vanjiar (9 km), Nular (13.77 km), Puravadaiyaran (5.3 km) Thirumalirayanar (5.13 km) and the Nandalar (15.15 km).

River Mahe forms the northen boundary of Mahe town separating it from the enclaves of Kallayi and Naluthara on the north. The Coringar river, which is a branch of Gautamin Godavari river flows through the town of Yanam.

History. Pondicherry entered modern history when the French East India Company established a settlement there in 1673. The French converted this obscure little village into a flourishing trading centre. The French were the last European power to come to India for trade. The Dutch and the English had already established themselves at various centres in India. The Portuguese who came first were by this time a spent force. It was quite natural that rivalries should arise amoung the later powers for dominance in India. Actually what brought them into conflict in India was rivalry at home, that is, in Europe. The Dutch were the first to cross swords with the *Fren*

hey captured Pondicherry in 1693 but re-
rned it to France under the Treaty of Ryswick
1699. Pondicherry regained its prosperity in
few years. In 1706 Pondicherry had a
opulation of 40,000 while the English town of
alcutta had barely 22,000.

In the meantime, the French East India
ompany had run into financial difficulties
nd the Company was forced to abandon their
rading posts in Bantam, Surat and Masulipat-
am. In 1720 the Company was reconstituted
s the "Perpetual Company of the Indies" and
ew French establishments sprang up in the
ast. Mauritius was occupied in 1721, Mahe on
he Malabar Coast soon after, Yanam in 1731
nd Karaikal in 1738. With the appointment of
Dupleix as Governor of Pondicherry in 1742
rance became involved in Indian politics.
Dupleix harboured ambitions of establishing a
rench Empire in India.

When the Austrian Succession War (1742–
8) broke out in Europe, England and France
ook opposite sides. Anglo-French hostility
spread to India. The English captured some
rench ships. Dupleix reacted sharply. He
aptured Madras in 1748. The Austrian War of
Succession was ended by the Treaty of Aix-La-
Chappelle and Madras was returned to the
English. Fresh hostilities, however, broke out
between the English and the French in India.
dicherry changed hands according to the
of the Anglo-French wars. The En-
captured Pondicherry in 1761, returned
1765, retook it in 1778, captured it a third
ne in 1793 and finally restored it to France in
1814.

When at last British paramountcy was estab-
lished in India, Pondicherry ceased to be of
any political importance and the British let the
French continue in their possessions in India.
The French Government handed over the
Administration of their territories in India to
he independent Government of India in
November, 1954. The territories thus handed
over were constituted into the Union Territory
of Pondicherry.

Administration. Pondicherry is administered by the President of India through a Lt. Governor who is advised by a Council of Ministers which is responsible to the legislative assembly, consisting of 33 members. Normally the Counil of Ministers under a Chief Minister carries on the Administration directly.

Districts

District	Area (sq km)	Population	Headquarters
1. Karaikal	160	1,20,010	Karaikal
2. Mahe	9	28,413	Mahe
3. Pondicherry	293	4,44,417	Pondicherry
4. Yanam	30	11,631	Yanam

State of Economy. Nearly 45% of the population in the Territory are engaged in agriculture and allied pursuits. In all 90% of the cultivated area is irrigated. Area and production of main crops during 1986-87: Rice: 27200 ha (89713 M.T.), Millets: 1229 ha (4100 M.T.), Pulses: 9100 ha (7,187 M.T.), Sugarcane: 3,009 ha (3,30,000 M.T.), Oilseeds: 6770 ha (14,290), Cotton: 1619 (7700 bales).

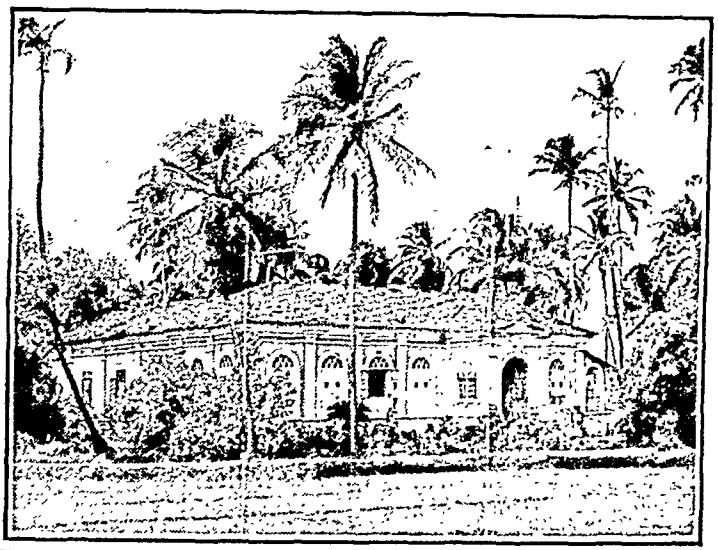
There are 12 large scale industries, (6 Textile Mills, two Sugar Mills, one Paper Mill, one Caustic Soda Unit and one Ceramic Unit) and 24 Medium Scale Industries which provide employment to 18,000 persons.

This apart, there are 2619 registered Small Scale Industries generating employment opportunities to 17,500 persons.

Tourist Centres. Pondicherry is a living monument of French culture in India.

Among the places of interest are Government palace, Beach, Auroville, Sri Aurobindo Ashram, Baharatiyar Samadhi, French Institute, Jawaharlal Institute of Post-Graduate Medical Education and Research, Indian Institute of Indology, Romain Rolland Library, Botanical Garden, Alliance Francoise, Ousteri Lake, Joan of Arc Square, Temples and Churches.

Lt. Governor: Tribhuvan Prasad Tewary; **Chief Minister:** M. O. H. Farook (Congress).



SPECIAL FEATURE

GOA: THE YOUNGEST STATE

Till August 12, 1987, Goa was part of the Union Territory of Goa, Daman and Diu. Goa became the twentyfifth state in the Indian Union by an act of Parliament on August 12, 1987 while Daman and Diu formed a Union Territory, administered by the Governor of Goa who simultaneously holds office as the Lt. Governor of Daman and Diu also. Since their liberation on December 19, 1961 from the Portuguese colonial rule, the three land blocks on the west coast of India, were under one administration.

Physiography: Situated between Karnataka and Maharashtra, Goa is bounded on the north by the Terekhol river, surrounded on the south and east by Karnataka while on the west is the Arabian Sea.

On its eastern sector Goa's terrain is hilly, forming the northern edge of the Sahyadri Mountain ranges. The major west-flowing

rivers that crease the territory are; Mandovi, Zuari, Terekhol, Chapora and Betul. The total navigable length of these rivers, which form the waterways by which Goa's main export commodity iron and manganese ore is transported to the Mormugao harbour, is 253 km. The Mormugao harbour is virtually the confluence of the Mandovi and Zuari rivers.

Goa's climate is warm and humid, with little variation in temperature. The annual rainfall is between 2800 mm and 3500 mm. History: Known for its admirable synthesis of culture, Goa's history can be traced back to the Mauryan empire in India in the third century B.C. In the second century B.C. the Konkan region was dominated by Krishna *Satakaini* of the Satavahana dynasty. In the days of yore, Goa was known as Gopakapattan, or Gomant,—names which figure in the Bhishma-Parva of Mahabharatha. Another puranic name was Govapuri. The second century traveller, Ptolemy, is believed to have referred to this territory as "gouba."

Goa came under the sway of the Bhojas and Mauryas from the fourth to the sixth century A.D. During the sixth century, Chalukyas of Badami drove out the Mauryas, from south Konkan (578 A.D.), while Rastrakutas of Malkhed ousted the Chalukyas of Badami in 753 A.D. They ruled over Deccan till 973 A.D., but in a short while the power structure changed the entry of Kadambas who ruled over from 1020 A.D. It was during the rule that commercially and culturalGoa scaled new heights. Chandrapur (now), and Gopakapattan or Govapuri known as Goa Velha) were two major port towns then.

Towards the beginning of the fourteenth century, some parts of Goa were overrun by Malik Kafur's forces, marking the beginning of a mohammadan domination which was, however, short-lived following the emergence of the Vijayanagar power. For a century Goa was part of the Vijayanagar empire. The Saptakoteswar Temple at Naroa—Divar, which the Mohammadans had demolished, was re built around this time.

For two decades from 1471, Goa came under the Bahamani rulers but once again Goa passed into the hands of the Muslim ruler when in 1489 Adilshah of Bijapur annexed i and it was from him that the Portugues adventurer Afonso de Albuquerque wreste the Territory on November 25, 1510. Kneelin in public square, Afonso de Albuquerqu dedicated Goa to St. Catherine, whose feas was on that day.

The Portuguese had already annexed Diu i 1535. Bardez on the north of River Mandov and Salcete on the south of River Zuari cam under Portuguese sway in 1543. These place along with Ilhas (known now as Panaji) ar known as "old Conquests" area. By the clos of the eighteenth century the region no identified as Goa was under Portuguese adm nistration, including the "new conques (Novas Conquistas) area such as Ponda, Sa guem and Quepem—all in 1763, Canacon (1764), Bicholim and Satari (1781) and Pe nem (1788).

However, it was not all that smooth for th foreigners for, there were resistance fro within and attacks from across the borders. I keeping with the sixteenth century axiom th the religion of the king had to be the religio of his subjects, Portugal began sending mi sionaries to Goa to spread Christianity. I 1557, Goa was elevated to an Archepiscop See repeat See and her "Primate of the Eas held jurisdiction from the African coast China. From 1560 to 1774, the Tribunal Inquisition ensured that the faith did n waver.

It was during this period that a Spanis Jesuit priest, Francis Xavier arrived in G (1542). He was a great missionary with compassion for the poor. Considered a ho man, he breathed his last in 1552 and h incorruptible body has been preserved in glass casket in the "Basilica of Bom Jesu" Old Goa, a few km east of Panaji. The fir printing press using moveable types was s up in Goa this time and the first book to b printed in this press was "Doutrina Christa written by Francis Xavier. Other publicatio

Goa: At a Glance

Area: *3702 sq km;* **Capital:** *Panaji (pronounced Ponji in Konkani and formerly known as Panjim in English);* **Population:** *10,07,749;* **Languages:** *Konkani and Marathi;* **Literacy:** *57 per cent.*

from the same press were: Krista Purana in Marathi, Doutrina Christa in Konkani (all by the first English Jesuit, Thomas Stephens) and a treatise on medicinal herbs, titled "Colloquios Dos Simples e Drogas Aedicinais" by Garcia de Orta.

Between 1667 and 1683 the Maratha warrior Shivaji and his son, Sambaji made occasional forays into Goa to free it from the Portuguese. This, coupled with the Dutch challenge, made the Portuguese control over the territory rather weak and that prompted internal revolts of which the "pinto conspiracy" (1787) and the "revolt of the Ranes" (1823) were more conspicuous. While the "pinto conspiracy" was the product of the neglect of the local clergy, who were denied their rightful place in the ecclesiastical heirarchy. At the same time, well qualified Goans were kept out of Government service too. The two sections combined under the leadership of Fr. Caetano Francisco Couto of Panaji and Jose Antonio Gonsalves of Divar. Word of that leaked out, several people were arrested but the leaders of the plot managed to escape to Bombay. From 1755 to 1822, the Ranaes of Satari revolted 14 times and every time the Portuguese might prevailed. The result was no different in 1823 and 1824. But, this had a sobering effect on the Portuguese who decided on certain reforms one of which was to accept three representatives from Goa to the Portuguese Parliament. But the Portuguese rulers in Goa opposed this move. Bernardo Peres da Silva, who managed to reach the Portuguese capital of Lisbon, was later (in 1835) sent back to Goa as the perfect but he was deposed within 18 days by the Portuguese authorities in the Territory. In between, in 1870,the Maratha sepoys in the Goan police, stationed at Marcela, revolted in protest against their transfer to Mozambique to quell an african rebellion. Nationalist movement: The first Goan to demand complete independence was Lusi Francisco Gomes in 1862. On September 21, 1880, a public rally organized to protest against attempts to rig the municipal elections, was fired upon in front of the Margao Church and 23 people fell dead on the spot. The rally was led by Jose Ignacio de Loyola and Roque Correia-Afonso. In 1910, Portugal became a Republic. In 1928, Dr. Tristao Braganza Cunha organized the Goa Congress Committee and affiliated it to the Indian National Congress.

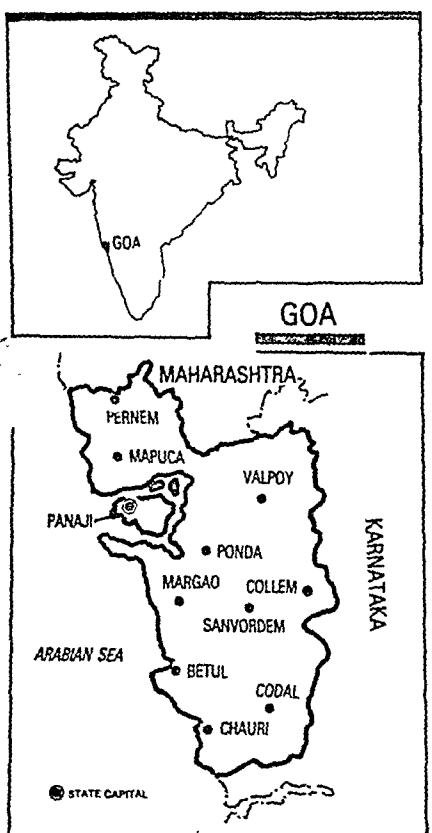
As the freedom movement in India gathered momentum, the struggle for freedom in Goa too became more pronounced. A prominent figure in this struggle was Luis de Menezes Braganza, who advocated a republican form of Government. The freedom movement entered a crucial phase on June 18, 1946 when the socialist leader, Dr. Ram Manohar Lohia, launched a civil disobedience movement, at Margao. On August 18, a meeting of Goan Nationalists was held at Londa, the southern gateway to the territory and founded the National Congress (Goa) which took up an armed struggle. Many lost their lives and many others were deported to Portugal, Angola and Cabo Verde for long periods of imprisonment.

The movement scored its first victory in 1954 when Dadra and Nagar-Haveli, a land block near Daman, was liberated. The Azad Gomantak Dal, which was the sword-arm of the movement, continued its armed challenge. Meanwhile, the focus had shifted to the United Nations on the repressive measures adopted by the Salazar regime in Goa. Though the action was in Goa, the brain of the movement was in Bombay where a Goa Action Committee was formed in 1958 under the leadership of Prof. Aloysius Soares. In December 1961, an Indian merchant vessel was fired upon by the Portuguese from the Anjadiv Island, near Karwar. Ultimately, the Government of India decided to act when news reached Delhi of a meeting in Panaji between the Portuguese Governor-General and the Pakistani Army Chief. "Operation Vijay" under Maj.-General K. P. Candeth, was launched on the night of December 18 and by next day, December 19, 1961, without any serious resistance, Goa was brought together with the Indian Union.

After Liberation: On December 20, 1961 Maj.-Gen. K. P. Candeth took over as Military Governor of Goa, Daman and Diu from the Portuguese Governor-General Manuel Antonio Vassallo e Silva. Under the constitution (twelfth amendment) act, 1962, Goa, Daman and Diu, as a single administrative unit, was integrated with the Indian Union as a Union Territory with effect from December 20, 1961. On March 24, 1962 Goa's first Marathi daily 'Gomantak' hit the stands. On June 8, T. Sivasankar, was sworn in as the first Lt. Governor of Goa and on September 24 the same year, a 29-member interim legislative council was constitute

an elected legislature. One month later, elections were held to 149 village panchayats in the Union Territory. On February 18, 1963, Goa's first English daily, "the Navhind Times" was launched. Soon after, elections were announced and Jawaharlal Nehru visited the territory from May 22 to 25. On August one, Harijans were allowed entry into the Mangeshi Temple.

Elections to the first Goa Assembly were held on December nine and the Maharashtrawadi Gomantak Party, led by Dayanand Bandodkar, was swept into power. The MGP's main plank was Goa's merger with Maharashtra, leaving Daman and Diu to be merged with Gujarat. The MGP had won 18 of the 30 seats while the United Goans Party, led by Dr. Jack de Sequeira, won 12 seats. The Indian National Congress, headed by Purushotham Kakodkar, drew a blank. The Bandodkar Ministry was installed in office in the presence of Dr. Zakir Hussein, Vice-President of India.



On September 1, 1964, the jurisdiction over the Union Territory was transferred from the ministry of External Affairs to the Union Home Ministry. In 1966, the Goa Daman and Diu assembly passed a resolution demanding Goa's merger with Maharashtra and integration of Daman and Diu with Gujarat. To meet the political compulsions, the Union Government enacted the Goa, Daman and Diu Opinion Poll Act and on that authority held the opinion poll, the first in the country, on January 16, 1967. The verdict was against the merger and the region remained a Union Territory and the statehood demand became louder. In the March 28 elections, the MGP which lost the Opinion Poll, was returned to power under the leadership of Mr. Bandodkar.

Two years later, on February 7, 1969, Mohan Ranade, a Goan freedom-figher, released from Portuguese jail, arrived in Goa while another freedom-fighter and poet, Dr. Telo Mascarenhas returned home from Portuguese jail on August 13, 1970. In the 1972 elections to the assembly, Bandodkar again led the MGP to power but the sports-loving chief minister, affectionately called "bhau" (elder brother) by even his detractors, passed away following a massive heart attack on August 13, 1973. His eldest daughter, Mrs. Sasikala Kakodkar, who was a minister of state then, took over as Chief Minister. She continued the MGP's electoral victory by sweeping the polls in 1977 but was felled by factionalism on April 27, 1979. In the next elections in January, 1980, the Indian National Congress was elected to power for the first time and Pratapsingh S. Rane, a former MGP leader and minister, who resigned to join the Congress, became the Chief Minister. He retained his leadership in the 1985 elections too.

State of Economy: Essentially export-oriented because of iron ore and manganese deposits, Goa is making a determined bid to stand on its own. Paddy is the main agricultural crop, followed by ragi, cashew and coconut. Rice is the staple food of Goans. Rice production 52,000 tonnes at the time of liberation, has gone up to 1.62 lakh tonnes.

Fragrant Culture

Goa's colonial past, in one sense, is also its wealth. The State is a place where the East and the West blend admirably, the two stimulating and supplementing each other, enriching the entire cultural milieu in the process. In the realm of music and art this fascinating fusion has left a fragrance and flavour that has survived vicious vicissitudes over centuries.

There are big names—all unforgettable. The long list begins with master Dinanath Mangueshkar, the father of the famous Mangeshkar sisters, Lata and Asha, "layabhaskar" parvatkar, described as a "miracle in rhythm", Smt. Hirabai Pednekar, the incomparable Kesarbai Kerkar and Mogubai Kurdikar (both disciples of the legendary Alladiya Khan) and of course, the contemporary rage, Kishori Amonkar, daughter of Mogubai.

Lata Mangeshkar, India's "melody queen", has refused to perform in Goa so far, piqued as she was by the manner in which her celebrated father first and then she herself were treated by those who control the famous Mangueshi Temple, in Ponda.

But, what will catch the eye of a visitor to Panaji first will be the statue of Abbe Faria, the father of "hypnotism". Under his out stretched hands lies a lass and the statue, right by the side of the Government Secretariat, has hypnotised visitors from all over the globe. Born in Candolim village on May 30, 1756, Jose Custodio de Faria, Abbe Faria had a disturbed childhood. Both this father and mother were from families which prided themselves as Gowd Saraswat Brahmins. Faria's father was a seminarian and had received minor orders when he fell in love with Rosa Maria. The torrid love affair soon cooled off, ending in a canonically decreed separation.

Another celebrity was Fr. Jose Vaz, who, proud of his brahmin ancestry, established the congregation of "Oratorians of India", with a condition that "only Brahmins could join this order." Fr. Jose later went to Sri Lanka (Ceylon) where he is now revered as the "venerable Apostle of Ceylon," as St. Thomas in Kerala.

Nobody can forget Dr. T. B. Cunha, who was described by Sardar K. M. Panikkar, as the father of Goa's freedom movement." A fluent writer and forceful orator, Dr. Cunha's full name was, Antonio Sebastia Pedro dos Remedios Franciso Tome Tristao de Braganca Cunha. Nehru mentioned about Dr. Cunha thus: "What is worth remembering is that this (Goa) small territory has produced a relatively large number of men and women who have sacrificed much in this struggle. Among them a name that stands out is that of Dr. T. B. Cunha."

Personalities apart, Goa offers to a visitor a vast variety of art and music. The "mando" (love songs of the Catholics), the Jathras (temple festival), the carnival, a heady three-day festival of fun and frolic preceding the observance of lent, the stage, known as the "theatre"—all blend so admirably that a visitor gets to know the best in the west and the east.

But personalities do merit mention. One of India's greatest Editors, Mr. Frank Moraes, his son Dom, Mr. S. Mulgaonkar Mr Malbaro Sardesai, the "Pakvaj" [illegible] tro, Air Marshal Pinto and Air [illegible] Moolgaonkar, the Telco chairman [illegible] gaonkar and then the indomitable [illegible] F Rebeiro, the Punjab Police [illegible] only a few among them.

Fish, like rice, is an important component of the Goans' food. With a 105 km long coastline, four thousand hectares of marshy land and 12,000 hectares of paddy land and 100 hectares of fresh water sources provide ideal setting for a flourishing [illegible] catch is around 56,00[illegible] trawlers and 2450 [illegible] fishing which [illegible] people.

Iron ore exports aggregated to 12.08 million tonnes, main buyer being Japan. There are twelve large industrial units, eleven medium-scale units and 3500 small-scale units. Annual growth rate of Goa during 25 years since liberation is estimated at six per cent while the per capita income of Rs 3811 at the current price index, is second only to that of the Punjab.

Education: Literacy rate went up from 30.67 in 1961 to 57 per cent; primary schools: 1272; upper primary schools: 439; high schools: 297; higher secondary schools: 23; colleges 18; (including professional colleges) university: one, inaugurated on June 30, 1985

Health: There are 33 Government and 69 private hospitals and 31 rural dispensaries; the Goa Medical School, the oldest in Asia was upgraded into a Medical College after liberation.

Tourism is gaining momentum as a major industry in Goa. On an average a million people, including 1.25 lakh foreigners, visit Goa. Dabolim airport, near the port town of Vasco-da-Gama, is equipped to receive chartered flights. The territory is known for its numerous beaches such as Calangute, Colva and Vagator.

Famous tourist spots in the territory are: Old Goa where is located the Basilica of Bom Jesus, which houses the casket containing the incorruptible body of St. Francis Xavier, the Apostle of Goa. Other famous shrines there are the Se Cathedral and the Assissi Church. A few km away is Ponda, where is situated the Mangueshi Siva Temple, the Santhia Durga Temple and the Nagueshi Temple. Dona Paula, overlooking the confluence of the Mandovi river, (in Panaji), the Aravelam waterfalls, the Mayem lake, the Dudsagar waterfalls, the Bondla sanctuary, the Mormugao harbour and the Aguada Fort are some of the other tourist centres.

Governor: Dr. Gopal Singh; **Chief Minister:** Mr. Pratapsingh Rane.

A Million Tourists Coming

With a steady increase in the number of tourists, Goa's floating population is likely to exceed the state's resident population by the turn of the century.

The regional plan for Goa 2001 AD anticipates the arrival of 1.12 million tourists by the end of the century. The figure could actually cross the 1.6 million-mark if the tourists traffic in the usually lull monsoon period picks up in the years to come.

The year's sustained campaign to promote tourism during the monsoon, the season when Goa is at its loveliest, has paid dividends with tourists pouring in larger numbers.

The available statistics show that the total number of tourists using Goa has been increasing from 120,000 in 1973 to 740,000 in 1986, registering a phenomenal increase of nearly 500 per cent in just 12 years.

Extrapolating the existing trend in the tourist traffic as well as various reports and projections made by experts from the Administrative Staff College of India, the Tata Consultancy and the UNDP, the regional plan forecasts a "reasonable" estimate of 1.12 million tourists in Goa, including 120,000 foreign visitors by 2001.

According to experts, this influx is bound to have a tremendous impact on the life as well as the economy of a site with a present resident population of only 1.09 million.

Tourism experts have pointed out that several residential homes in the countryside could be used to accommodate tourists. Such a step would not only help preserve Goa's architectural heritage, but also provide an additional source of revenue for the owners.

Findings of a recent survey have revealed that as many as 21 per cent of the foreign tourists preferred to stay in private house. There is a proposal to encourage the use of private houses, or at least parts of them, as holiday homes, bars and restaurants by giving special incentives. If the scheme works, as envisaged, a large percentage of the growing tourist population could live in Goan villages amidst traditional surroundings.

Part Four
WORLD OF SPORTS

The Year Of The New World Champions

SPORTS UPDATE

A review of all the major international sports events of 1987 including the world Athletic Championship at Rome, Reliance Cup Cricket in India and Pakistan, Wimbledon, India's Davis Cup thriller at Sydney, Anand's world win at Baguio.

A photo finish in Rome, scorching square drive in Calcutta, a gentle backhand drop volley in Sydney, the world of sports presented never ending excitement. 1987 was the year of new champions.

World records took a tumble. World champions were dethroned. There were winners and losers. But no deserters. The year of the olympics is back. New aspirations, new targets. Yes, the world of sports is never at rest.

Some one had said 1987 would be the year of the athlete. So it proved to be. In late August and early September Rome was the capital of the world of sports. Rome was where 'Big Ben' struck, Edwin Moses sweated and Daley Thompson fell.

At the world athletic championship Ben Johnson, the Jamaica born Canadian became the fastest human being. Running the 100 metre strip in a breathtaking 9.83 seconds, Big Ben erased Calvin Smith's world record of 9.93 seconds which was set more than four years ago in the high altitude of Colorado Springs in the U.S.

Carl Lewis, the Olympic champion was pushed back to second place. Ben Johnson, duly respecting his modesty, later declared that he would do better next year. This is the 'next year' and Olympics is round the corner.

Rome meet saw another world record tumbling. Bulgaria's Stefka Kostadinova cleared 2.09 metres in women's high jump, improving upon her own world record.

The race of the championship was predicted to be the men's 400 metres hurdles. Edwin Moses's apparently never ending victory streak was under threat from the fellow American Danny Harris. The 65000-strong crowd stood on their toes when the *monarch over the hurdles* took off. It was a photofinish, alright. When Moses charged to the tape, he was half a metre ahead of Harris and West Germany's Harald Schmid. But in the spurt to the finish, he seemed to lose ground as he breasted the tape. Harris dipped his torso forward and looked like snatching the title. But Harris failed by a hair-breadth's margin. The timing showed Moses clocking 47.46 seconds while Harris and third placed Schmid jointly timing 47.48 seconds.

The rest of the Rome story is that of missed records and titles. Jackie Joyner Kersee of United States came close to her own world record in heptathlon by 33 points. She won the gold with 7128 points. Sergie Bubka, the Russian lost his concentration while trying 6.05 metres in polevault. Though he won the gold in 5.85 metres, his own world record of 6.03 metres set earlier stood unsurpassed.

The greatest upset came in men's decathlon when the Olympic, Commonwealth and defending champion Daley Thompson lost his crown miserably. East Germany's Torsten Voss became the best all-rounder in the world with 8600 points, 219 more than West Germany's Siegfried Wentz. Soviet Union's Pavel Tarnovetsky picked the bronze. Daley finished a poor ninth with 8124 points.

The Indians were nowhere in the picture. P. T. Usha lost in 400 m hurdles semi and the relay squad comprising Ashwini Nachappa, Vandana Shanbag, Sani Joseph and Vandana Rao for 4 × 100 and Vandana Shanbag, Vandana Rao, Shiny Abraham and P. T. Usha for 4 × 400 finished last in their respective semis. The 4 × 400 squad clocked 3:31.55 sec. which is a new Asian mark.

The *Asian Track and Field Meet* in Singapore, in late July proved once again China's superiority in this part of the world. (That China could win only one medal, a bronze, at Rome shows how poor Asian standard is when compared to world class performance). But the highlight of the meet was the performance of Qatarimen. Talal Mansoor won both the sprints. Qatar proved superior in middle distance too.

The rest was predictable. Lydia de Vega won both the women's sprints while P. T. Usha won both 400 flat and 400 hurdles. The Indian quartret won the relay too.

Apart from Rome, the biggest sporting event of 1987 was the Reliance World Cup Cricket Championship held in India and Pakistan. Fought between October 8th and November 8th, the championship was all thrill and nerve-tingling excitement.

Proving all pundits wrong, one-day cricket took its own course. Defending champion India and Pakistan were the favourites. They did not even reach Eden Gardens, Calcutta for the final. A grossly under-estimated Australia, captained by Allan Border, beat England and won the cup.

India lost to England in the second semifinal at Bombay. Australia beat Pakistan at Lahore in the first semi. So far, in the world cup, the hosts have never won the title.

Here too, records were set. India's Chetan Sharma became the first bowler to get a hatrick in the world cup. Against New Zealand at Nagpur, he clean bowled Ken Rutherford, Ian Smith and Ewen Chatfield in successive deliveries. Vivian Richards, the West Indies captain hit 181 against Sri Lanka at Karachi to become the highest individual scorer. Till then it was Kapil Dev who had scored 175 not out at Trent Bridge Wells in 1983.

World Cup wrung the curtain down on two of the greatest players of modern cricket—Sunil Gavaskar of India and Imran Khan of Pakistan. Gavaskar had achieved everything possible in cricket. The only target which had eluded him was a one-day hundred. That he

won at Nagpur against New Zealand—103 not out. Pakistan cricket owed a lot to the dynamic leadership of Imran. He lead them to victories against India in India and against England in England. World Cup was his last goal. But he could not complete the hatrick.

It was in August that Pakistan won its first ever series in England. They won the Headingly test and the other four were drawn. Earlier, in India, after a series of dull draws, Pakistan staged a sensational victory at Bangalore and clinched the series 1-0.

The Merrylbourne Cricket Club, London, celebrated their bicentinary year with a test match in August. Mike Gatting led an M.C.C. eleven against a World Eleven led by Allan Border. The thrilling match ended in a draw due to rain. Gavaskar playing for world eleven scored his first century at Lords It was his last five-day international. Score. M.C.C 455 for 5; 318 for 6. Rest of the world: 421-7. 13-1

If India lost one world crown, she won two. In Bangio, Phillipines in August India's Viswanathan Anand became the first Asian to win the *World Junior Chess Championship*. In a field of 52, including two Grand Masters and 12 International Masters, young Anand was the only undefeated player He won 10 points in the 13 round tournament including a win against Grand Master Agdestein Simon of Norway

The previous day, in Belfast, India's Geeth ethi retained his world Amateur Billiards itle. Including a world record break of 763, Sethi beat Joe Grech in the final

Came September and the Indian *Davis Cup Tennis* squad created the biggest upset of the year in Sydney. They beat the defending champion Australia 3-2 in the semifinal. Ramesh Krishnan, chip of the old block Ramanathan Krishnan, won both the singles against St. John Fitzgerald and Wally Masur while the old war horse Vijay Amritraj lost to Fitzgerald, after beating Masur. The Indian pair of Anand Amritraj and S. Vasudevan lost to the Pat Cash—Peter Doohan pair.

India qualified for the finals against former champion Sweden. This is the third time India enters the final of Davis Cup. In 1966 India entetred the challenge round but lost to Australia. In 1974, India boycotted the final against South Africa as a protest against their aparthied policy.

The greatest tennis show was in July at *Wimbledon*. Australian Pat Cash outblasted Ivan Lendl 7-6 (7-5) 6-2, 7-5 to win his first Wimbledon which was also his first grand slam title. Martina Navratilova retained the woman's crown beating West German Steffi Graff 7-5, 6-3. However, the biggest upset came in the second round when reigning champion Boris Becker was thrashed by an unheralded Australian, Peter Doohan. 7-6, 4-6, 6-2, 6-4.

West Germany won the Federation Cup—the women's world title—in Vanconver in August beating holders United States.

Ivan Lendl won the U.S. open, in August, for the third consecutive time. He beat Mats Wilander 6-7, 6-0, 7-6, 6-4. Martina Navratilova won the women's title beating Steffi Graff 7-6 (7-4) 6-1. Martina scored a tripple, winning the doubles and mixed doubles titles too.

Steffan Edberg and Hana Mandlikova won the singles titles of the Australian Open. Edbeg beat Pat Cash 6-3, 6-4, 3-6, 5-7, 6-3 and Hana beat Martina 7-5, 7-6.

In *Table Tennis* China's superiority went unchallenged. In the world championship at New Delhi they won both, the men's Swaythling Cup and the women's Corbillon cup. They beat Sweden and South Korea respectively (both 3-0). At Macao, China's Teng Yi won the world cup beating China's own world champion Jiang Jialing 21-18, 21-15, 16-21, 21-14.

Mike Tyson punched his way into the annals of *heavy weight boxing* history. He became the first undisputed champion in 9 years when he scored a unanimous 12 rounds decision against Tony Tucker. This was in Las Vegas. Tyson holds both the I.B.F. and I.B.C. titles.

For *football* 1987 was the post World Cup year. In the English Football League's centenary match at Wembley, the English League Eleven beat Rest of the World team starring Maradona and Platini 3-0.

Michael Platini, former French captain and the 'master of the midfield' retired from international soccer. Antonio Cabrini, the Italian defender, also called it a day. He was the main architect of Italy's World Cup win in 1982, in Spain.

At Santiago, Yugoslavia won the *World Junior Soccer* title beating West Germany 5-4 in the penalty shoot-out. At the end of the regular time, the teams were locked one all.

ASIAN GAMES

The origin of Asian Games goes back to 1947 when the Asian Relations Conference held at New Delhi, decided to organise an international games meet for Asian countries on the lines of Olympic games, once in four years. Since then the games have grown into the biggest sports festival in Asia.

The Games were held at New Delhi, India (1951); Manila, Philippines (1954); Tokyo, Japan (1958); Jakarta, Indonesia (1962); Bangkok, Thailand (1966); Bangkok, Thailand (1970); Teheran, Iran (1974); Bangkok, Thailand (1978); New Delhi, India (1982); Seoul, S. Korea (1986). Next Asiad, in 1990, is to be held in Beijing, China.

Seoul Asiad Medals Tally

	G	S	B	T
China	94	82	46	222
South Korea	93	55	76	224
Japan	58	76	77	211
Iran	6	6	10	22
India	5	9	23	37
The Philippines	4	5	9	18
Thailand	3	10	13	26
Pakistan	2	3	4	9
Indonesia	1	5	14	20
Hong Kong	1	1	3	5
Qatar	1	0	3	4
Lebanon	1	0	1	2
Bahrain	1	0	1	2
Malaysia	0	5	5	10
Iraq	0	5	2	7
Jordan	0	3	1	4
Kuwait	0	1	8	9
Singapore	0	1	4	5
Saudi Arabia	0	1	0	1
Nepal	0	0	8	8
Bangladesh	0	0	1	1
Oman	0	0	1	1

G- Gold, S- Silver, B- Bronze, T- Total.

Athletics

Men: 100 m: Mansoor Talal (Qatar - 10.30, Record) 2. Hiroki Fuwa (Japan) 3. Zheng Chen (China).

200 m: Chang Jae Keun (Korea - 20.71) 2. Li Feng (China) 3. Nagura Masahiro (Japan).

400 m: Takano Susumu (Japan - 0:45.00, Asian Record) 2. Prado Isidro Del (Philippines) 3. Al Malky Mohammed Amur (Oman).

800 m: Kim Bok-Joo (Korea - 1:49.15) 2. Ryu Tae-Kyung (Korea) 3. Al Sowailem Najem (Kuwait).

1500 m: Oshida Shuji (Japan - 3:43.88) 2. Ryu Tae-Kyung (Korea) 3. Sulaiman Mohammed (Qatar).

5000 m: Kim Jong-Yoon (Korea - 13:50.63 - Record) 2. Shintaku Masanari (Japan) 3. Kanai Yutaka (Japan).

10000 m: Shintaku Masanari (Japan - 28:26.74 Record) 2. Kim Jong Yoon (Korea) 3. Seko Toshihiko (Japan).

3000 m Steeple Chase: Aikyo Shigeyuki (Japan - 8:36.98 Record) 2. Cheng Shouguo (China) 3. Nagasate Hajime (Japan).

110 m Hurdles: Yu Zhicheng (China - 14.07 Record) 2. Lu Quanbin (China) 3. Kim Jin-Tae (Korea).

400 m Hurdles: Hamada Ahamad (Bahvrin - 0:49.31, Asian Record); 2. Yoshida Ryoichi (Japan) 3. Al Douwalia Jasem (Kuwait).

20 km Walk: Zun Xiaoguang (China - 1:25:46 Record) 2. Jiang Shaohong (China) 3. Ram Chand (India).

Marathon: Nakayama Takeyuke (Japan - 2:08.21 Record) 2. Taniguchi Hiromi (Japan) 3. Ryu Jae-Sung (Korea).

High Jump: Zhn Jian Hua (China - 2.31 m) 2. Li Yunpeng (China) 3. Ujino Shuji (Japan)

Pole Vault: Ji Zebiao (China 5.40 m record) 2. Liang Xueren (China) 3. Lee Jae-Bok (Korea).

Long Jump: Kim Jong-il (Korea - 7.94 m) 2. Usui Junichi (Japan) 3. Chen Zunrong (China).

Triple Jump: Yamashita Norifumi (Japan - 17.01 m Record) 2. Park Young-Jun (Korea) 3. Zou Zhenxian (China).

Shot Put: Ma Yong Feng (China - 18.30 m) 2. Gong Yitian (China) 3. Urita Yoshihisa (Japan).

Discus Throw: Li Weinan (China - 58.28 m) 2. Meada Yuko (Japan) 3. Singh Manjit (India).

Javelin Throw: Misoguchi Kazhuhiro (Japan 76.60 m) 2. Kim Jae-Sang (Korea) 3. Park Joug-Sam (Korea).

Hammer Throw: Murofushi Shigenobu (Japan - 69.20 m) 2. [illegible] Jun (China) 3. Lu Dongping (China

Decathlon: Chen Zebin (China - 7255 pts) 2. Kojo Takeshi (Japan) 3. Park Young-Jun (Korea).

4×100 m Relay: China (0:39.17 - Asian Record) 2. Japan 3. Korea.

4×100 m Relay: Japan (3:02.33 - Asian Record) 2. Iraq 3. Philippines.

Women 100 m: Lydia De Vega (Philippines - 11.53 s Record) 2. P.T. Usha (India) Ratjai Sripet (Thailand).

200 m: P.T. Usha (India - 23.44 Record) 2. Lydia De Vega 3. Mi Sun Park (Korea).

400 m: P. T. Usha (0:52.16 - Record) 2. Shiny Abraham (India) 3. Hiromi Isosak (Japan)

800 m: Chun Ae Him (Korea - 2:05.72) 2. Liuxia Yang (China) 3. Josephina Mary Singarayar (Malaysia).

1500 m: Chun Ae Lim (Korea - 4:21 38) 2. Liuxia Yang (China) 3. Wel Ja Kim (Korea)

3000 m: Chun Ae Lim (09:11 92 – Record) 2. Xiuyun Zhang (China) 3 Suman Rawat (India).

10,000 m: Xiuting Wang (China – 32:47 77 – Asian Record) 2 Kumi Araki (Japan) Hongyan Xiao (China).

100 m Hurdles: Chen Kemei (China - 13.78) 2 Akimoto Chizuko (Japan) 3 Jojima Naomi (Japan)

400 m Hurdles: P.T Usha (India - 56.08-Record), 2 Zhao Qunqnian (China) 3. Chen Juying (China)

10 km Walk: Guan Ping (China 0:48:40) 2. Lu Yongnu (China) 3 Hirayama Hideko Japan)

Marathon: Asai Eriko (Japan - 2:41:03) Miyahara Misoko (Japan) Wen Yawmin (China).

High Jump: Sato Megumi (Japan - 1.89 m) Zheng Dazhen (China) Kim Hee Sun (Korea).

Long Jump: Liao Wenfen (China - 6.37) Huang Doug Huo (China) Isogai Minako (Japan).

Shot Put: Huang Zhihong (China - 17 51 m) Cong Yuzhen (China) Suzuki Aya (Japan).

Discus Throw: Hon Xuemei (China - 59.28-Record) LiXiaohui (China), Lee Sang Yuk (Korea).

Javelin Throw: Li Baolian (China - 59.42 m), Matsui Emi (Japan) Jang Sun Hee (Korea).

Heptathlon: Zhu Yuquing (China - 5580 pts Record) Ye Liauying (China) Ji Jung Mi (Korea).

4×100 m Relay: China (0:44.78 Asian Record) Thailand, Korea.

4×400 m Relay: India (3:34.58 - Record) Japan, China.

Champions

Athletics: 1. China, 2. Japan, 3. Korea.
Gymnastics: 1. China; 2. Korea; 3. Japan.
Golf: 1. Korea; 2. Philippines; 3. Japan.
Rowing: 1. China, 2. Japan, 3. Korea.
Hand ball: 1. Korea, 2. China, 3. Japan.
Shooting: 1. China, 2. Korea, 3. Japan.
Cycling: 1. Japan, 2. China, 3. Korea.
Archery: 1. Korea, 2. Japan, 3. China.
Hockey: 1. Korea, 2. Japan, 3. Pakistan.
Table Tennis: 1. China, 2. Korea, 3. Japan.
Yachting: Korea, 2. China, 3. Pakistan.
Weight Lifting: 1. China, 2. Korea, 3. Japan.
Bowling: 1. Japan, 2. Philipines, 3. Korea.
Aquatics: 1. Japan, 2. China, 3. Korea.
Tennis: 1. Korea, 2. China, Indonesia.
Basketball: 1. China, 2. Korea, 3. Japan.
Fencing: 1. China, 2. Korea, 3. Japan.
Equestrian: 1. Japan, 2. Korea, 3. Kuwait.
Taekwondo: 1. Korea, 2. Iran, 2. Jordan.
Judo: 1. Korea; 2. Japan, 3. China.
Wrestling: 1. Korea, 2. Japan, 3. Iran.
Badminton: 1. China, 2. Korea, 3. Japan.
Boxing: 1. Korea, 2. India, 3. Thailand.
Volleyball: 1. China, 2. Korea, 3. Japan.
Football: 1. Korea, 2. Saudi Arabia, 3. Kuwait.

Winners for India

Gold: P.T. Usha (200 m, 400 m, 400 m hurdles, 4×400 m Relay), Kartar Singh (100 kg Freestyle wrestling).

Silver: P.T. Usha (100 m), Shiny Abraham (400 m), Sahu Birajdar, Sir Jairam, Daljit Singh, Jaipal Singh (All Boxing), Soma Dutta (Shooting), Khazan Singh Tokas (Swimming), Farokh Tarapore, Dhruv Bhandari (Yachting).

Bronze: Chand Ram (20 km walking), Manjit Singh (Discus Throw), Suman Rawat (3000 m, G.D. Kamble, John Williams, Gopal Dewang, Manjit Pal Singh, Bhadur Gurung (All Boxing), J.S. Ahluwalia, Gulam (Mohammed Khan, Raghubir Singh, Adhiraj Singh (Equestrian), Sandeep Byala, Cawas Billimoria, Shyam Singh Gurjar, Bunnu Singh (all Judo), Joydip Das, Bhagirath Samai, Ghisalal Yadav (Shooting), G. Muthuswami (Weight lifting), Suresh Kumar, Gurmakh Singh (Wrestling), Badminton Men's team, Hockey (men and women), Volleyball (men).

COMMONWEALTH GAMES

Commonwealth Games are conducted every four years on the lines of the Olympics, but entries are limited to Commonwealth countries only. Games have been staged in the following cities.

1930 Hamilton (Bermuda), 34 London (Britain), 38 Sydney (Australia), 50 Auckland (New Zealand), 54 Vancouver (Canada), 58 Cardiff (Britain), 62 Perth (Australia), 66 Kingston (Jamaica), 70 Edinburgh (Britain), 74 Christ Church (New Zealand), 78 Edmonton (Canada), 82 Brisbane (Australia), 86 Edinburgh (England).

Medal position in the 13th Commonwealth Games held at Edinburgh (England) in 1986.

Country	Gold	Silver	Bronze
England	52	42	48
Canada	51	34	30
Australia	40	46	34
New Zealand	8	16	14
Wales	6	5	12
Scotland	3	12	18
N. Ireland	2	4	9
Isle of Man	1	0	0
Guernsey	0	2	0
Swaziland	0	1	1
Hong Kong	0	0	2
Malawi	0	0	2
Botswana	0	0	1
Jersey	0	0	1
Singapore	0	0	1

ATHLETICS

World Athletic Meet, Rome

Men 100 m: 1.Ben Johnson,Canada(9.83).2. Carl Lewis, U.S. (9.93). 3. Raymond Stewart, Jamaica (10.08).

200 m: 1. Calvin Smith, U.S. (20.16). 2. Guilles Queneherve, France (20.16). 3. John Regis, Britain (20.18).

400 m: 1. Thomas Schonlebe, East Germany (44.33). 2. Innocent Egbunike, Nigeria (44.56). 3. Harry Reynolds, U.S. (44.80).

800 m: 1. Billy Konchellah, Kenya (1:43.06). 2. Peter Eliot, Britain (1:43.41). 3. Jose Louis Barbosa, Brazil (1:43.76).

1500 m: 1. Abdi Bile, Somalia (3:36.80). 2. Louise Jose Gonsalves, Spain (3:38.03). 3. Jim Spivey, U.S. (3:38.82).

3000 m steeple chase: 1. Francesco Panetta, Italy (8:8.57). 2. Hagen Melzer, East Germany (8:10.32). 3. William Van Dijck, Belgium (8:12.18).

5000 m: 1. Said Aouita, Morocco (13:26.46). 2. Domingo Castro, Portugal (13:27.59). 3. Jack Buckner, Britain (13:27.74).

10,000 m: 1. Paul Kipkoech, Kenya (27:38.63). 2. Francesco Panetta, Italy (27:48.67). 3. Hansjoerg Kunze, East Germany (27:50.37).

100 m hurdles: 1. Greg Foster, U.S. (13.21). 2. Jon Ridgeon, Britain (13.29). 3. Colin Jackson, Britain (13.38).

400 m hurdles: 1. Edwin Moses, U.S. (47.46). 2. Danny Harris, U.S. (47.48). 3. Harold Schmid, West Germany (47.48).

20 km walk: 1. Maurizio Damilano, Italy (1 hr. 20 mts. 45). 2. Josef Pribilinec, Czechoslovakia (1:21.07). 3. Jose Marin, Spain (1:21.24).

50 km walk: 1. Hartwig Gauder, East Germany (3 hr. 40.53). 2. Ronal Wergel, E. Germany (3:41.30). 3. Vyacheslav Ivanenko, U.S.S.R. (3:44.02).

Marathon: 1. Douglas Wakihuru, Kenya (2:11.48). 2. Ahmed Saleh, Djibouti (2:12.30). 3. Gelindo Bordin, Italy (2:12.40).

Long jump: 1. Carl Lewis, U.S. (8.67 m). 2. Robert Emmiyan, USSR (8.53). 3. Giovani Evangelisti, Italy (8.38).

High jump:1.Patrick Sjoberg,Sweden (2.38 m). 2. Igor Paklin, USSR (2.38). 3. Gennady Avdeyenko, USSR (2.38).

Pole vault: 1. Sergei Bubka, USSR (5.85 m). 2. Thierry Vigneron, France (5.80). 3. Rodoion Gataulin, USSR (5.80).

Discus throw: 1. Juerger Schult, E. Germany (68.74 m). 2. John Powell, U.S. (66.23). 3. Louis Delis, Cuba (66.02).

Shotput: 1. Werner Guenthder, Sweden (22.23 m).

Decathlon: 1. Torsten Voss, E. Germany (8600 points). 2. Siegfried Wentz, W. Germany (8381). 3. Pavel Tarnovetsky USSR.

Relay: 4 × 400: 1. U.S. (37.90). 2. U.S.S.R. 3. Jamaica

Women

100 m:1. Silke (
sec.), Heike Dres

Big Ben Strikes

Rome — the last Sunday of August. Under a clear blue morning sky, a black lightning strikes the olympic stadium. It lasts exactly 9.83 seconds. Yes, Big Ben has struck. The whole world has heard it.

Ben Johnson (24) of Canada streaked out of the starting blocks, whizzed past the finishing line in 9.83 seconds in the 100 m race at the World Track and Field Championship and became world's fastest human being. Calvin Smith's record of 9.95s lay scuttled. This could well be the race of the century.

This Jamaica born Canadian is only 5 ft 10 inches small. But beware, this is explosive energy. Gun to finish, Big Ben is all elegance. His record is all the more glorious when you consider that it's not a couple of hundredth of a second that he broke in these days of electronic timing. It is a clear one tenth of a second. Also remember, the man he beat was the olympic and world champion Carl Lewis.

Ben Johnson is one of the seven children of a god fearing Jamaican family which emigrated to Toronto, Canada, years ago. Coached by Charlie French, Ben gained international attention when he won silver in the 1982 Commonwealth Games. In the

first World Meet at Helsinki (1983) finished sixth in the semi. At LA Olymp (84) he won bronze. From then on, B was among the top few.

The champion, who is the fastest star off the blocks, is soft spoken and mode However, he could not help telling reporters at Rome: "At an altitude I gues could do it in 9.75". Surely, this man is one hell of a hurry!

Merlene Ottey, Jamaica (11.04).

200 m: 1. Silke Gladisch (21.73). 2. Florence Griffiths, U.S. (21.75). 3. Merlene Ottey (22.05).

400 m: 1. Olga Bryzgina, U.S.S.R. (49.38). 2. Petra Mueller, E. Germany (49.94). 3. Kirsten Emmelman (50.20).

400 hurdles: 1. Sabine Buseh, E. Germany (53.63). 2. Debra Flintoff King, Australia. 3. Cornelia Ulrich, E. Germany.

800 m: 1. Sigrun Wodars, E. Germany (1:55.26). 2. Christine Wachtel, E. Germany (1:55.32). 3. Linboy Gurina, USSR (1:55.56).

1500 m: 1. Tatiana Samolenko, USSR (3:58.56). 2. Hildegard Koerner, E. Germany (3:58.67). 3. Sandra Gasser, Switzerland (3:59.06).

3000 m: Tatiana Samolenko (8:38.73). 2. Mariciea Puica, Romania. 3. Ulrike Bruns, E. Germany.

10,000 m: 1. Ingrid Kristiansen, N (33:07.92). 2. Elena Zhupieva, USSR. 3. I ine Ulrich, E. Germany.

Marathon: 1. Rosa Mota, Portugal 25.17). 2. Zoja Ivanova, USSR (2:32.3 Jocelyne Villeton, France.

10 km walk: Irina Strakhova, USSR (2. Kerry Saxby, Australia (44:23). 3. Yan China (44:42).

High jump: 1. Stefka Kostadinova, B (2.09 m). 2. Tamara Bykova, USSR. 3. S Beyer, E. Germany.

Shotput: 1. Natalia Lisovaskaya, (21.24 m). 2. Kathrin Nemke, E. Ge (21:21). 3. Ines Mueller, E. Germany (

Javelin: 1. Fatima Whitbread, Britain m). 2. Petra Felke, E. Germany (71.76). 3 Peters, W. Germany (68.82).

Long jump: 1. Jackie Joyner Kersee, U.S. (7.36 m). 2. Elena Belevkava, USSR (7.14). 3. Heike Dreschler, E. Germany (7.13).

Discus throw: 1. Martina Hellman, E. Germany (73.26 m). 2. Diana Gansky (70.12). 3. Kristove Tsventanska, Bulgaria (68.82).

Heptathlon: 1. Jackie Joyner Kersee (7128 points). 2. Larissa Nikitina, USSR (6564). 3. Jance Frederick, U.S. (6502).

4 × 100 Relay: 1. U.S. (41.58 s). 2. E. Germany (41.95). 3. U.S.S.R. (42.33).

4 × 400 relay: 1. E. Germany (3:18.63). 2. U.S.S.R. (3:19.50). 3. U.S. (3:21.04).

Medal Tally

	Gold	Silver	Bronze
East Germany	10	11	10
United States	9	5	5
U.S.S.R.	7	12	6
Bulgaria	3	—	1
Kenya	3	—	—
Italy	2	2	2
Britain	1	3	3
Portugal	1	1	—
Switzerland	1	—	1
Canada	1	—	—
Finland	1	—	—
Morocco	1	—	—
Norway	1	—	—
Somalia	1	—	—
Sweden	1	—	—
France	—	2	1
Australia	—	2	—
West Germany	—	1	2
Czechoslavakia	—	1	1
Spain	—	1	1
Djibouti	—	1	—
Nigeria	—	1	—
Romania	—	1	—
Jamaica	—	—	4
Cuba	—	—	2
Belgium	—	—	1
Brazil	—	—	1
China	—	—	1

I.A.A.F. Permit Meet

International Amateur Athletic Federation's Permit meet was held in India for the first time. New Delhi was the venue.

Men

100 m: 1. Thomas Jefferson (US), 2. Charles Louis Seck (Senegal), 3. M'Baye M'Bagnick (Senegal) (10.20 s).

3,000 m steeplechase: 1. Rajinder Singh (Ind.), 2. Shamsuddin (Ind.), 3. Jai Singh (Ind.) (8:55.08).

Pole vault: 1. Bernhard Zintl (FRG), 2. Vijay Pal Singh (Ind.), 3. S. S. Tanwar (Ind.) (5.40 m).

Shotput: 1. Avtar Singh (Ind.), 2. Mohammed Merza (Qatar), 3. Yaquoub Yusuf (Qatar) (17.00 m).

200 m: 1. M'Baye M'Bagnick (Senegal), 2. N. Rami Reddy (Ind.), 3. C. Boda (Mauritius) (21.34 s).

800 m: 1. Boye Check Tidiane (Senegal), 2. Meesaq Rizvi (Pak.), 3. Budhwa Oraon (Ind.) (1:47.86).

5000 m: 1. Tara Singh (Ind.), 2. Danveer Singh (Ind.), 3. E. Rajender (Ind.) (14:48.50).

400 m Hurdles: 1. C. Haridas (Ind.), 2. Jagir Singh (Ind.), 3. Bhaskar (Ind.) (53.75 s).

High Jump: 1. N. Annavi (Ind.), 2. Veerappan (Ind.), 3. Dharminder Sinha (Ind.) (2.10 m).

Long Jump: 1. Kim Won Jin (S. Korea), 2. G. R. Shyamkumar (Ind.), 3. M'Bengue Badaria (Senegal) 7.73 m).

Javelin throw: 1. Dag Wennlund (Sweden), 2. Arop Justin (Uganda), 3. Peter Borglund (Sweden) (75.84 m).

400 m: 1. Ulrich Sclepeutz (FRG), 2. Muralidharan (Ind.), 3. Ravindrakumar Fernando (Sri Lanka) (47.05 s).

1500 m: 1. Boye Check Tidiane (Senegal), 2. M. T. Belliappa (Ind.), 3. Subhash Mathew (Ind.) (3:59.00).

110 hurdles: 1. Benny John (Ind.), 2. Ashish Mondal (Ind.), 3. Vijay Kumar (Ind.) (14.33 s).

Triple Jump: 1. Rajinder Singh (Ind.), 2. Jayakrishna (Ind.), 3. John Mathew (Ind.) (14.97 m).

Discus throw: 1. Kuldeep Singh (Ind.), 2. A. K. Singh (Ind.), 3. Asrar Gul (Pak.) (49.12 m).

Women

100 m: 1. Ashwini Nachappa (Ind.), 2. Nancy Vallecia (Ecuador), 3. Zenia Ayrton (Ind.) (11.94 s).

800 m: 1. Shiny Abraham (Ind.), 2. I. Carparen (Mauritius), 3. Beena Peter (Ind.) (2:06.47).

Discus throw: 1. Vijamala Bhanot (Ind.), 2. Harpreet Kaur (Ind.), 3. Neelam Kumari (Ind.) (45.06 m).

200 m: 1. Nancy Vallecia (Ecu[illegible]), 2. Ashwini Nachappa (Ind.), 3. Jayamir[illegible]ma (Sri Lanka) and S. Vyapu[illegible] (24.04 s).

400 m hurdles: 1. P. T. Usha (Ind.), 2. Shantimol Phillips (Ind.), 3. Virge Viss (USSR).

400 m: 1. P. T. Usha (Ind.), 2. Shiny Abraham (Ind.), 3. Budhi Kumari (Nepal) (52.6 s).

1,500 m: 1. Suman Rawat (Ind.), 2. Surjit Kaur (Ind.), 3. K. A. Molly (Ind.) (4:33.10).

Javelin throw: 1. Shiny Verghese (Ind.), 2. Razia Shaikh (Ind.), 3. Gurbari Hembran (Ind.) (45.88 m).

World Cup Athletics

Canberra, Australia. In Oct. 85 world record holders in 12 out of 32 individual events competed but only two world records were broken, both by GDR women, Martina Koch in 400 m and in the team quarter in 4×100. U.S. men team won championship beating USSR and GDR women won vs. Soviets. Asian team under P.T. Usha with 7 Indians were sixth in women section and seventh and last in men's section.

Men: 1. U.S. 123, 2. USSR 115, 3. GDR 114, 4. Europe 97, 5. Africa 81, 6. Oceanic 65.

Women: 1. East Germany (GDR) 121, 2. USSR 105, 3. Europe 86, 4. USA 61, 5. Oceanic 52, 6. Asia 42, 7. Africa 41.

Best by Indian representatives were 7th place in 400 m hurdles (56.36 sec) by P.T. Usha and 7th by Balwinder Singh in shot put. Shiny Abraham (800 m), Vandana Rao (200 m), Bageicha Singh (1500 m) and Raghbir Singh (Hammer) were placed eighth in their events.

World University Meet

Zagreb, July 1987: United States topped the final table with 26 golds.

Medal Table

	G	S	B
U.S.	26	19	24
U.S.S.R.	25	33	21
Romania	21	12	10
Italy	12	8	10
China	9	9	12
Yugoslavia	7	7	5
E. Germany	5	3	5
Hungary	5	2	5
Britain	4	1	4
Netherlands	3	10	8
W. Germany	3	5	5
Bulgaria	3	4	1
Japan	3	3	6
Poland	3	1	2
Cuba	1	3	2

Asian Track and Field Meet

Singapore: The high light of the July me was the stunning performance of Qatar sprint and middle distance events. Qatar h never been an athletic challenge in this part the world. But in Singapore, they carved the brilliance in gold. Talal Mansoor stole th limelight winning both the sprints. Esma Mohammed Yousuf won the 800 and Ahma Ebrahim won the 5000, in style.

P.T. Usha's supremacy in the sprint event was shaken when Lydia De Vega of Philippine won the 100 m well ahead of her.

Men

100 m: 1. Talal Manzoor (Qatar) 10.41 sec 2. Chen Hsin-fu (Taiwan) 10.56. 3. Li Tao (China) 10.57.

200 m: 1. Talal Manzoor (Qatar) 20.71 sec. 2. Li Feng (China) 3. Chen Hsin-fu (Taiwan).

400 m: 1. Mohd. Amer Al Malki (Oman) 45.77 sec. 2. Nordin Mohd. Jadi (Malaysia). 3. Yoshito Toyada (Japan).

400 m Hurdles: 1. Shigenori Omori (Japan) 50.09 sec. 2. Jasim Al-Duwella (Kuwait). 3. Nasser Maho Ahmed (Qatar).

800 m: 1. Esmael Mohd. Yousuf (Qatar) 1 min. 47.81 sec. 2. Tae Kyung-Ryu (South Korea) 1.:48.00. 3. R. Haridoss (Malaysia) 1:48.27.

1500 m: 1. Duan Xiuquan (China) 3 mins. 45.11 secs. 2. Shigeki Nakayama (Japan), 3. Yutaka Hoshino (Japan).

5,000 m: 1. Ahman Ebrahim (Qatar) 14 mins. 09.29 sec. 2. Yoshiaki Iwasa (Japan), 3. Cai Shanyan (China).

10 km walk: 1. An Limei (China) 52 mins. 40.21 sec. 2.Yuki Nanbu (Japan), 3. Hyun Joo-Park (South Korea)

High Jump: 1. Liu Yupeng (China) 2.24 m, 2. Hyun Uk-Cho (South Korea), 3. Ramjit Nairu (Malaysia).

Long Jump: 1. Won Jun Kim (South Korea) 8.00 m, 2. Liu Yuhuang (China), 3. Wang Shijie (China).

Discus Throw: 1. Li Weinan (China) 56.10 m (Asian Championship record), 2. Wang Dao Ming (China) 3. Mansour Ghorbani (Iran)

Javelin Throw: 1. Takahiro Yamada (Japan) 72.62 m. 2. Frans Mahuse (Indonesia), 3. Ji Zhanzheng (China).

Shotput: 1. Ma Younfeng (China) 18.32 m, 2. Gong Yitian (China), 3. Balwinder Singh (India) 17.56 m.

Rome Meet's Measuring Error

Italian sports authorities are inquiring into the men's long jump at last September's World Athletics Championship in Rome after an apprarent measuring error of more than half a metre was discovered, s spokesman said.

Augusto Frasca, spokesman for the Italian Atheletics Federation (FIDAL), revealed details of the inquiry following a television report which cast major doubt on the accuracy of measurements in the event.

State television used a video and computer technique called 'telebeam' which it claimed showed that the top three finishers had not jumped as far as had been measured by electronic equipment at the event.

"We cannot understand how something like this could have happened. It is clear that there was a mistake. Even if telebeam is approximate, one sees that the distance is not that which was given (in September)" Fraca said.

The difference, according to the television report would not have affected gold medal winner Carl Lewis, of the United States, or Soviet silver medallist Robert Emmiyan. But Italy's Giovanni Evangelisti, who took the bronze, was apparently outjumped by American fourth-place finisher Larry Myricks.

In the September 5 event, Lewis won the gold in 8.67 metres, Emmiyan was second with 8.53 and Evangelisti third with 8.38 Myricks, of the United States, was fourth with 8.33.

The telebeam measurement, which has a three per cent margin of error, showed that Evangelisti's jump was about 58 centimetres under the official result.

In the Evangelisti case, "The (official) measurement appears to be absolutely wrong", Frasca said "All the jumps measured (on television) were less than that on the day of the event but not as clearly as Evangelisti's".

The paper quoted Evangelisti as saying he was willing to return the bronze medal if the telebeam results were accurate. In a stinging front-page editorial the paper said the episode was an embarrassment for Italy.

Pole Vault: 1. Liang Xueren (China) 5.35 m (new meet record) 2. Teruhisa Kamiya (Japan), 3. Guu Jin Shoei (Taipei).

Women

100 m: 1. Lydia De Vega (Philippines) 11.43 sec. 2. P.T. Usha (India) 11.74, 3. Tain Yumei (China) 11.76.

200 m: 1. Lydia De Vega (Philippines) 23.38 sec. 2. Pan Weixin (China), 3. Hiromi Isozaki (Japan)

400 m: 1. P.T. Usha (India) 52.31 sec. 2. Vandana Shanbag (India), 3. Xie Zhiling (China).

110 m Hurdles: 1. Feng Yinghua (China) 13.56 sec. 2. Chen Wen Ing (Taiwan), 3. Wang Shu Hwa (Taiwan).

400 m Hurdles: 1. P.T. Usha (India) 56.48 secs. 3. Chan Fen Hua (Taiwan), 3. Hitomi Koshimoto (Japan).

800 m: 1. Se Bum-choi (South Korea) 2 min. 05.11 secs. 2. Jiang Shuling (China) 2 min. 05.21 secs. 3. Lim Chun-ae (South Korea) 2 min. 05.39 secs.

3000 m: 1. Kim Chun-mae (North Korea) 9 min. 17.19 secs. 2. Zhang Xiuyun (China), 3. Kim Ryon-sun (North Korea).

10 km Walk: 1. An Limei (China) 52 mins. 40.21 sec., 2. Yuki Nanbu (Japan), 3. Park Hyun-joo (South Korea).

High Jump: 1. Dong Yu Ping (China) 1.83 m, 2. Ma Miaolan (China), 3. Jung Mi Ji (Korea).

Long Jump: 1. Wang Zhihui (China) 6.70 m. 2. Liao Wenea (China), 3. Li Yong Ae (North Korea).

Shot Put: 1. Cong Yuzhen (China) 18.17 m., 2. Mi Sun-choi (Korea), 3. Lee Chin Hua (Taiwan).

Discus Throw: 1. Xing Ailan (China) 58.08 m, 2. Hyé Young Jung (South Korea), 3. Juliana Effendy (Indonesia).

Javelin Throw: 1. Li Baolian (China) 60.12 m, 2. Lee Hui Chen (Taiwan), 3. Naomi Tokuyama (Japan)

Heptathlon: 1. Dong Yu Ping (China) 60

points (Asian record); 2. Ma Miaolan (China), 3. Wang Shu Hwa (Taiwan).

Medal Table

	G	S	B
China	21	13	8
Qatar	5	2	1
Japan	4	7	7
South Korea	3	7	4
India	3	3	1
Philippines	2	–	–
North Korea	1	–	4
Oman	1	–	–
Taipei	–	4	10
Malaysia	–	2	2
Indonesia	–	1	1
Kuwait	–	1	–

South Asian Federation Games

Calcutta, November 1987: In practically one sided competitions in most of the events, India came top once again.

Medal Table

	G	S	B
India	91	45	19
Pakistan	16	36	13
Srilanka	4	8	23
Bangladesh	3	19	32
Nepal	2	7	33
Bhutan	0	1	5

The next meet is to be held in Islamabad in 1989.

World Cup Marathon

Seoul, April 1987: Ahmed Saleh of Djibouti (2 hr 10 min 55 seconds) and Geoja Invanova of Soviet Union (2:30.39) won the men's and women's title respectively.

National Open Athletics

Mangalore, May 1987: Services won men's team title - 129 points. Railways came second: 108 points. Thrid: Police - 42.

Railways won women's title - 137 points. Second: Karnataka - 41; Third: Food Corporation of India: 37.

P.T. Usha won 4 golds. Anand Shetty of Heavy Engineering and Aswini Nachapa of Karnataka became the fastest man and woman in the country.

Junior National Athletics

Bangalore: January '87 Kerala won overall championship with 220 points. Karnataka finished second with 208 points.

Individual champions: Boys under-19: Bikar Singh (Punjab), Boys under-16: Mahesh (Maharashtra).

Girls under-18: Molly Chacko (Kerala), Girls under-15: Bhagyasri (Karnataka) and Zeenaytron of Maharashtra.

Team championship: Boys under-19: Delhi. Boys under-16: Pubjab.

Girls under-18: Kerala, Girls under-15: Karnataka.

Inter State Athletics

Ranchi, May: Bihar won overall championship - 150 points. Kerala 114 came second. Men: 1. Bihar (71), 2. Kerala (49) and Tamil Nadu (49). Women: 1. Bihar (79), 2. Kerala (65).

1990 Asiad in Beijing

The 1990 Asian Games will be held in Beijing in late September and early October.

The motto of the games will be "Unity, Friendship and Progress" the organising committee said after its first meeting in Beijing in April, 1987.

The [illegible] dates, [illegible] were discussed at the meeting.

Twenty-one events had been finalised and three more would be submitted to the Olympic Council of Asia for approval.

The approved events are soccer, basketball, volleyball, table-tennis, badminton, tennis, handball, field hockey, baseball, track and field, swimming, gymnastics, weightlifting, shooting, archery, fencing, judo, wrestling, cycling, rowing and yachting.

Sixteen new sports facilities would be built and 11 existing ones updated for the games.

BADMINTON

World Badminton

Beijing May 1987: China's Yang Yang beat Denmark's Morten Frost Hansen 15–2, 13–15, 15–12 in men's final and China's Han Aiping beat compatriot Lei Lingway 10–12, 11–4, 11–7 in women's final.

National: Jammu, February 1987: Railways beat Maharashtra in the men's final and Maharashtra beat Railways in the women's final.

Men's singles: Syed Modi retained the title beating Harjeet Singh 15-4, 15-12.

Women's Singles: Madhumita Bisth beat Ami Ghia 11-5, 11-4.

BILLIARDS

Billiards and Snooker Nationals: Pune, January 1987: Geet Sethi completed a double when he retained the national billiards title beating Subash Agarwal (1821-1477) and defeated Yousuf Mirza, five frames to four, in snooker.

CRICKET

The Reliance World Cup

Jointly held by India and Pakistan and sponsored by the Reliance Industries Ltd. of India, the fourth World Cup Cricket Championship was won by Australia under Allan Border's captaincy. In the final at Eden Gardens, Calcutta, they beat England by 7 runs.

In the first semifinal at Lahore, Australia beat Pakistan by 18 runs. England beat defending champion India in the second semifinal at Bombay by 35 runs.

First semi: Pakistan vs. Australia

Lahore, Nov. 4

Australia: G. Marsh (run out) 31; D. Wood b Miandad b Malik 65; D. Jones b Taus[illegible] 39; Border (run out) 18; M. Veletta b Imran 48; Waugh (not out) 32; S. O'Donnell (run out) 2; G. Dyer b Imran 0; C. McDermott b Imran 1; May (not out) 0; Extras (lb 19, b 1, w 13, nb)

1991 World Cup

Australia and New Zealand are considering the possibility of staging the 1991 Cricket World Cup in both countries.

Australian Cricket Board chief executive David Richards said the two countries were conducting a feasibility study on the idea and would not make a final decision for some months.

"We've only just started scratching the surface on the practicality of it and it will be early 1988 before we come to a conclusion on whether to proceed in a detailed fashion," he said.

Richards said the two countries had been talking about the idea before the World Cup, staged in India and Pakistan, which Australia won.

He acknowledged that the success of the two-country experiment in the Indian sub-continent had lent weight to the Australian plans.

But he said the chief reason for trying to stage the event in two countries rather than solely in Australia was concern at the large number of games — 27.

"We feel we would get a better result for world cricket with New Zealand than on our own," Richards said.

He said he had heard reports that India and Pakistan, and England, were thinking of also bidding for the Cup when the matter is discussed at a meeting of the International Cricket Conference in [illegible]

Fall of wickets: 1-2, 2-37, 3-38, 4-150, 5-177, 6-192, 7-212, 8-236, 9-247.

Australian bowling: McDermott 10-0-44-5; Reid 10-2-41-2; Waugh 9-1-51-1; O'Donnell 10-1-45-0; May 6-0-36-0; Border 4-0-26-1.

Man of the match: Craig McDermott.

Second semi: India vs England

Bombay, Nov. 5:

The scores:

England: G. A. Gooch c Srikkanth b Maninder 115; R. T. Robinson st More b Maninder 13; C. W. J. Athey c More b Sharma 4; M. W. Gatting b Maninder 56; A. J. Lamb (not out) 32; J. E. Emburey lbw b Kapil Dev 6; P. A. J. DeFreitas b Kapil Dev 7; P. R. Downton (not out) 1; Extas (b 1, lb 18, w 1) 20; Total (six wkts in 50 overs) 254.

Fall of wickets: 1-40, 2-79, 3-196, 4-203, 5-219, 6-231.

Indian bowling: Kapil Dev 10-1-38-2; Prabhakar 9-1-40-0; Maninder Singh 10-0-54-3; Sharma 9-0-41-1; Azharuddin 2-0-13-0, Shastri 10-0-49-0.

India: K. Srikkanth b Foster 31; S. M. Gavaskar b DeFreitas 4; N. S. Sidhu c Athey b Foster 22; M. Azharuddin lbw b Hemmings 64; C. Pandi lbw Foster 24; Kapil Dev c Gatting b Hemmings 30; R. J. Shastri c Downton b Hemmings 21; K. S. More c and b Emburey 0; M. Prabhakar c Downton b Small 4; C. J. Sharma c Lamb b Hemmings 0; Maninder Singh (not out) 0; Extras (b 1, lb 9, w 6, nb 3) 19; Total (all out in 45.3 overs) 219.

Fall of wickets: 1-7, 2-58, 3-73, 4-121, 5-168, 6-204, 7-205, 8-218, 9-219.

England bowling: DeFreitas 7-0-37-1; Small 6-0-22-1; Emburey 10-1-35-1; Foster 10-0-47-3; Hemmings 9.3-1-52-4; Gooch 3-0-16-0.

Man of the Match: G. A. Gooch.

Final: England vs Australia

Calcutta, Nov. 8:

The scores:

Australia: G. Marsh b Foster 24; D. Boon c Downton b Hemmings 75; D. Jones c Athey b Hemmings 33; C. McDermott b Gooch 14; A. Border (run out) 31; M. Veletta (not out) 45; S. Waugh (not out) 5; Extras (b 1, lb 13, w 5, nb 7) 26; Total (five wkts. in 50 overs) 253.

Fall of wickets: 1-75, 2-151, 3-166, 4-168, 5-241.

England bowling: DeFreitas 6-1-34-0; Small

The Khan Retires

The cricket in the sub-continent bids adieu to one of the greatest all rounders of modern times—Imran Khan Niazi. Imran was to Pakistan what Gavaskar was to India. They needed him and he was there. They didn't want to lose him, but he chose to call it a day.

Pakistan cricket has never reached such heights before. It was Imran's leadership quality and his ability to lead them from the front, setting personal examples that gave the country's cricket its new found life. It was a dream run for Pakistan when Imran took them to victories against India in India and against England in England. But the dream was shattered when Imran failed to achieve the golden hatrick with a world cup victory.

The Lahore semifinal was his last appearance on the field. He failed. Such an irony in his greatness is nothing but the way of the nature.

One of the world's best swing bowlers, Imran joined the '300 club' in England in 1987. His average of just a shade over 22 runs per wicket is surpassed only by Denis Lillee of Australia and Ricahard Hadlee of New Zealand.

Reliance World Cup Final group points

The following is the position of the teams at the conclusion of the league phase of the Reliance Cup cricket tournament.

Group A

	M	*W*	*L*	*R*	*O*	*R.R.*	*P*
India	6	5	1	1364	252.0	5.41	20
Australia	6	5	1	1454	280.0	5.19	20
New Zealand	6	2	4	1357	277.4	4.88	8
Zimbabwe	6	0	6	1127	300.0	3.76	0

Group B

	M	*W*	*L*	*R*	*O*	*R.R.*	*P*
Pakistan	6	5	1	1497	299.0	5.01	20
England	6	4	2	1495	292.0	5.12	16
West Indies	6	3	3	1548	300.0	5.16	12
Sri Lanka	6	0	6	1192	295.0	4.04	0

M-Matches played. W-Won. L-Lost. R. Runs. R.R.-Run rate. P-Points.

6-0-33-0; Foster 10-0-38-1; Hemmings 10-1-48-2; Emburey 10-0-44-0; Gooch 8-1-42-1.

England: G. Gooch lbw b O'Donnell 35; T. Robinson lbw b McDermott 0; B. Athey (run out) 58; M. Gatting c Dyer b Border 41; A. Lamb b Waugh 45; P. Downton c O'Donnell b Border 9; J. Emburey (run out) 10; P. DeFreitas c Reid b Waugh 17; N. Foster (not out) 7; G. Small (not out) 3; Extras (b 1, lb 14, w 2, nb 4) 21; Total (for eight wkts. in 50 overs) 246.

Fall of wickets: 1-1, 2-66, 3-135, 4-170, 5-188, 6-218, 7-220, 8-235.

Australian bowling: McDermott 10-1-51-1; Reid 10-0-43-0; Waugh 9-0-37-2; O'Donnell

India in Test Cricket

		Played	Won	Lost	Drawn	Tie
Against West Indies	:	54	5	22	27	—
England	:	75	11	30	34	—
Australia	:	45	8	20	16	1
New Zealand	:	25	10	4	11	—
Pakistan	:	40	7	4	29	—
Sri Lanka	:	7	2	1	4	

India in one-days

		Matches	Won	Lost	No Results
Against West Indies	:	14	3	11	—
England	:	19	7	12	—
Australia	:	29	11	16	2
New Zealand	:	20	9	11	—
Pakistan	:	26	10	15	1
Sri Lanka	:	15	11	3	1
Zimbabwe	:	4	4	—	—

tyle is ge

All good things must come to an end. The best thing that has ever happened to Indian cricket came to an end on November 5, 1987 at Bombay. Mission accomplished, the hero rode into sunset.

It was inevitable that Sunil Gavaskar would one day unbuckle his leg-guards, for good. Nevertheless, the cricketing world, India in particular, heaves a sigh of pain. Such true genius does not come that often.

Sunil Gavaskar is not merely 10,122 runs and 34 centuries. At a time when the world of cricket tends to forget the truth that discipline is an integral part of excellence, here was a man who was the embodiment of this classic quality Gavaskar the cricketer was discipline, determination and excellence — the genius.

The 'Sunny days' lasted 17 years. In 125 tests, facing the fastest of world's bowlers at their fierce best, Gavaskar broke almost all possible records in modern cricket. There are critics who blame him for over possessiveness of individual land marks. But what Indian cricket achieved through him is his answer

However, his personal records are very much there to let the world gape wonderstruck. Highest number of test appearances: 125. Highest individual total: 10,122 runs. Highest number of centuries: 34. Highest number of half centuries: 45. The only player to score 5000 runs while playing abroad. And many more.

The century at Lords during the M.C.C. bicentenary test and the century at Nagpur in the Reliance World Cup completed his last two desires. Don Bradman, the greatest found his heir apparent in no one other than this Little Master. The Indian team is now Gavaskarless. His style is his message.

10-1-35-1; May 4-0-27-0; Border 7-0-38-2.

Man of the Match. David Boon

Pakistan in India

January to March 1987

The series included five tests and six oneday internationals. After four dreary draws, the fifth and the last test at *Bangalore* suddenly turned sensational. Pakistan won by 17 runs. First series win (1-0) for Pakistan in India. Bangalore also saw *Sunil Gavaskar's* last test appearance in India.

Scores: Pakistan: 116 and 249; India: 145 and 204.

Pakistan also won the one-day series 5-1. At Hyderabad, both the terms scored 212. But India won by the loss of lesser wickets. (India 212 for six, Pakistan 212 for seven).

Sri Lanka in India

December 86-January 1987

Sri Lanka played three tests and five one day internationals. *India* won both the serie 3-0 and 3-1 respectively. Sri Lanka achieved thrilling victory in the first one-day at Kanpur by 117 runs. Scores: Sri Lanka - 195-8 in 4 overs. India 78 all out in 24.1 overs. During th third test at Cuttack, *Kapil Dev* clean bowle Rumesh Ratnayake and completed 300 wicket in test cricket.

Ranji Trophy

National Cricket Championship is being conducted since the last 51 years for Ranj Trophy. Kumar Shri Ranjit Singhji, (1872-1933

Jamsaheb of Nawanagar, Gujarat, was a wizard of the willow game. Nicknamed Run-get-Singji, in England in 1900 he amassed 3065 runs (average 87.57). His total was 24,567 runs, (average 45) and he scored 72 centuries. He played for England against Australia and scored a century on debut inspiring many including his nephew Duleep Singhji, who also scored a test hundred on debut.

Ranji Trophy Winners: 1935 and 36 Bombay, 37 Nawanagar, 38 Hyderabad, 39 Bengal, 40 & 41 Maharashtra, 42 Bombay, 43 Baroda, 44 W. India, 45 Bombay, 46 Holkar, 47 Baroda, 48 Holkar, 49 Bombay, 50 Baroda, 51 Holkar, 52 Bombay, 53 Holkar, 54 Bombay, 55 Madras, 56 & 57 Bombay, 58 Baroda, 59-73 Bombay, 74 Karnataka, 75-77 Bombay, 78 Karnataka, 79 & 80 Delhi, 81 Bombay, 82 Delhi, 83 Karnataka, 84 & 85 Bombay, 86 Delhi, 87 Hyderabad.

Hyderabad beat defending champion Delhi in the final and won the national cricket crown after 49 years.

Scores: Hyderabad-457, 480 for 7; Delhi-433.

Irani Trophy

Hyderabad, November: Ranji trophy champions Hyderabad won the Irani trophy by virtue of its first innings lead over Rest of India. Scores: Hyderabad-405 and 255 for 6; Rest of India - 378.

Duleep Trophy

Bhilai, Oct. North Zone regained the Duleep Trophy by virtue of first innings lead over West Zone. Scores: West Zone 444, 230 for 5; North Zone: 868.

Deodhar Trophy

North Zone retained the title with a seven-wicket victory over West Zone. Scores: West Zone: 221 for seven in 50 overs; North Zone: 223 for 3 in 45.2 overs.

FOOTBALL

World Cup-'86: Mexico: Argentina became world champions beating West Germany 3-2

World Cup - so far

1930	Uruguay 4	Argentina	2
1934	Italy 2	Czechoslovakia	1
1938	Italy 4	Hungary	2
1942	No matches held		
1946	No matches held		
1950	Uruguay 2	Brazil	1
1954	W.Germany 3	Hungary	2
1958	Brazil 5	Sweden	2
1962	Brazil 3	Czechoslovakia	1
1966	England 4	W. Germany	2
1970	Brazil 4	Italy	1
1974	W.Germany 2	Poland	1
1978	Argentina 3	Holland	1
1982	Italy 3	W. Germany	1
1986	Argentina 3	W. Germany	2

The 1990 World Cup is to be held in Rome, Italy.

Junior World Cup-'87

Yugoslavia beat West Germany in the final to become junior world champions.

Veterans World Cup-'87

Sao Polo, January 1987: Argentina beat Brazil 1-0 and became the veterans world champions.

Olympics:

Los Angeles-'84: France won the gold, beating Brazil 2-0. Bronze for Yugoslavia.

Asian Games

Seoul '86: South Korea beat Saudi Arabia 2-1. Kuwait won bronze.

Nehru Gold Cup '87

Calicut, February: Soviet Union won the cup for the third straight year. They beat Bulgaria 2-0 in the finals.

European Cup

Vienna, May 1987: Portugal's Porto Football Club won the European cup beating Beayern Munich, West Germany 2–1.

South American Cup

Buenos Aires, July 1987: Uruguay retained the cup beating Chile 1–0 in the final.

Federation Cup

Cuttack, May 1987: Mohan Bagan, Calcutta won the Federation Cup for the sixth time, beating Salgoakar, Goa 2–0 in the final.

Santosh Trophy National Football '87

Calcutta, April: After a gap of three years, Bengal regained the national title, beating Railways 1-0. Amit Bhadra was the scorer.

SANTOSH TROPHY

Year	Winners	Runners-up	Venue
1941	Bengal	Delhi	Calcutta
1942-43		Not held	—

1944	Delhi	Bengal	Delhi
1945	Bengal	Bombay	Bombay
1946	Mysore	Bengal	Bangalore
1947	Bengal	Bombay	Calcutta
1948		Not held	—
1949	Bengal	Hyderabad	Calcutta
1950	Bengal	Hyderabad	Calcutta
1951	Bengal	Bombay	Bombay
1952	Mysore	Bengal	Bangalore
1953	Bengal	Mysore	Calcutta
1954	Bombay	Services	Madras
1955	Bengal	Mysore	Ernakulam
1956	Hyderabad	Bombay	Trivandrum
1957	Hyderabad	Bombay	Hyderabad
1958	Bengal	Services	Madras
1959	Bengal	Bombay	Nowgong
1960	Services	Bengal	Calicut
1961	Railways	Maharashtra	Bombay
1962	Bengal	Mysore	Bangalore
1963	Maharashtra	Andhra	Madras
1964	Railways	Bengal	Gauhati
1965	Andhra	Bengal	Quilon
1966	Railways	Services	Hyderabad
1967	Mysore	Bengal	Calcutta
1968	Mysore	Bengal	Bangalore
1969	Bengal	Services	Nowgong
1970	Punjab	Mysore	Madras
1971	Bengal	Railways	Madras
1972	Bengal	Tamil Nadu	Panaji
1973	Kerala	Railways	Cochin
1974	Punjab	Bengal	Jullundur
1975	Bengal	Karnataka	Calicut
	Bengal	Maharashtra	Patna
	Bengal	Punjab	Calcutta
	Bengal	Goa	Srinagar
	Bengal	Punjab	Coimbatore
	Punjab	Railways	Cuttack
	2 Bengal	Railways	Trichur
	Bengal	Goa	Calcutta
	Goa	Punjab	Madras
	Punjab	Maharashtra	Kanpur
	Punjab	Bengal	Jabalpur
	Bengal	Railways	Calcutta

l Trophy '87: Madras: Malaysian Indian ts Association, Kuala Lumpur retained Trophy for one more year, scoring an 1-0 over Reserve Bank in the final.

)CKEY

ld Cup '86

ndon: Australia won the cup. 2. England 3. Germany.

ıpics '84

s Angeles: Pakistan won gold beating West ıany 2–1. Bronze: Britain.

n Games '86

ɔul: Gold: South Korea. Silver: Pakistan. ze: India.

The Champion of The Grey-matter

Champions need not always come from the 'physical' world only. Viswanathan Anand, the 17 year old handsome lad from Tamil Nadu proved this point by winning the great battle of 'grey-matter' in Baguio city, Philippines. By winning the world junior chess title, Andand proved that he owns one of the sharpest young brains in the world today.

Anand gave India a world title in a field where only the Soviets and Americans fight each other for supremacy. Till Anand came along, India could only claim to be land where chess was bron.

Anand learnt the tricks of the game in Philippines where he spent a few years with his father, a senior official in the Indian Railways, who was there on deputation. He returned to India and won all the national titles and gained international attention in the Asian championship.

The champion is one of the fastest movers on the chessboard. They come breathtakingly fast. Even the Soviets who are the wizards, have commended Anand's sharp and quick reflexes.

The field in the last world junior championship was perhaps the strongest ever, with two Grandmasters and 12 International Masters. By winning the field, Anand is halfway to becoming a Grandmaster, an achievement no other Indian has claimed so far.

Champions Cup Hockey

Amstelveen, June: West Germany retained the Champions Cup. They beat Soviet Union 5–2 in the last of the round robin matches. Hosts Netherlands came second. They beat world champions Australia 2–1 in their last match.

Indira Gandhi Gold Cup Hockey

New Delhi, January 1987: *Men:* Netherlands beat India 2–0 in the final. Spain came second and India third.

Women: Soviet Union beat India 4–2 to lift the cup. Both the teams were joint defending champions.

National Women's Hockey '87

New Delhi Sept. 27, 1927: Railways won the championship, eighth time in a row beating Air India 3–0.

TENNIS

Wimbledon

Australia's *Pat Cash* defeated world number one Ivan Lendl 7-6, 6-2, 7-5 to win the men's singles title.

Martina Navratilova equalled Helen Wells Roody's record when she won her eighth women's singles crown. She beat Steffi Graff of West Germany 7-5, 6-3.

Women's doubles: Claudia Khode-Kilsch of W. Germany and Helena Sukova of Czechoslovakia bt Betty Gahelson of US and Elizabeth Smylie of Australia 7-5, 7.6.

Men's doubles: Ken Flach and Robert Seguso, the U.S. pair bt Emilio Sanches and Sergio Casals, the Spanish pair.

Davis Cup

Sydney, October 4 1987: India bt defending champion Australia 3-2 to enter the final of the Davis cup tennis championship for the third time. The Indian team comprised Vijay Amritraj, Ramesh Krishnan, Anand Amritraj and S. Vasudevan. The Australian team included Wally Masur, John Fitzgerald, Pat Cash and Peter Doohan. Neale Fraser was the non-playing captain.

Scores: Singles: Ramesh beat Fitzgerald 6-1, 6-2, 3-6, 8-6. Vijay beat Wally Masur 1-6, 6-3, 12-10, 6-4.

Doubles: Pat Cash and Peter Doohan beat Anand and Vasudevan 6-3, 6-4, 6-4.

Reverse Singles: Fitzgerald beat Vijay 7-5, 6-3. Ramesh beat Wally Masur 8-6, 6-4, 6-4

The Channel Conquered

Anita Sood, the former national swimming champion created sporting history for India when she conquered the English channel in an Asian best of 8 hours and 15 minutes. On August 17, 1987 Anita Swam from Shakespeare Beach to Cape Gris Nez on France's western coastline, knocking 27 minutes off the earlier record held by her Otter Club Poolmate, Bejoy Jain.

With this incredible performance she surged ahead of not only the best female swimmers of Asia, but also the best distance male champions. The world record, however, belongs to Penny Lee Dean of United States who crossed the channel in 7 hrs 40 minutes (1978).

In the past 111 years, about 400 swimmers have conquered the channel.

Anita's achievement becomes all the more creditable for the fact that she did it in one of Europe's coldest summers. During long hours of workouts at Dover harbour, she used to shiver violently. But she overcame all such pressures and hung on and won.

Sweden beat Spain in the other semi at Barcelona.

Scores: Singles: Mats Wilander beat Emilio Sanches 8-6, 3-6, 6-0, 6-2. Stefan Edberg beat Javier Sanches 6-4, 6-2, 6-4.

Doubles: Sergio Casal and Emilio Sanches beat Wilander and Anders Jarryd 6-0, 6-3, 2-6, 6-4.

Reverse Singles: Edberg beat Emilio Sanches 6-4, 8-6, 6-4.

Table Tennis

National Table Tennis Championship: New Delhi, January 1987: *Maharashtra* beat Delhi (5-4) and *Petroleum Sports Control Board* beat Maharashtra 'A' (3-1) to claim the men's and women's team titles respectively. Kamalesh Mehta beat S. Sriram 21-9, 22-20, 21-5 to win the men's singles and Varsha Chulani beat Niyati Roy 13-21, 22-20, 20-22, 21-14 to win the women's singles.

VOLLEY BALL

Federation Cup

Bombay, January 1987: U.P beat Services 14–16, 15–4, 15–7, 13–15, 15–4 in the last match.

WEIGHT LIFTING

National Championship

National Weightlifting Championship Cochin January 1987: Services won the team championship with 424 points. Railways came second (409) and Tamil Nadu, third (328).

Tamil Nadu won the *interstate team title* - 134 points. Second: West Bengal (98).

N. K. Baroga of Railways was adjudged *best lifter.*

MISCELLANEOUS

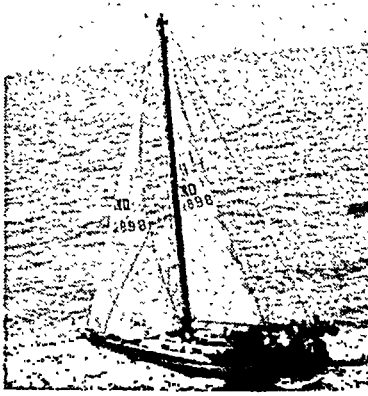
Himalayan Car Rally

New Delhi, Nov. 1987: Japanese Kenjiro Shinozuka won the eighth Himalayan Car Rally. He drove a Mitsubishi starion. Ross Dunkerton of Australia came second. Four time winner Jayant Shah of Kenya finished third.

Dragon Boat Race, Singapore

1. Singapore, 2. Thailand, 3. India.

'Trishna' Fulfilled



Crossing the waves around the wo 'Trishna' (meaning Thirst') came b with flying colours. The Sappers – Ind Army Engineers – sailed around the w in a yacht 'Trishna'.

'Trishna' skippered by Lt. Col. K.S. Rao sail for their 55000 km odyssey on Sept. 1985 from Bombay. They came back grand welcome on January 10, 19 They crossed the equator thrice.

They sailed from Bombay to Male, then on to Mauritius before going arou the Cape of Good Hope to the island o Helena.

Crossing the equator for the second ti northwards they sailed into the Port Balem in Brazil and up the Caribbean S through the Panama Canal to the So Atlantic towards Galapagos Islands.

Crossing the equator once again, headed for the Polynesian Islands. A halts at Jakarta and Singapore, they c to Colomb, via Nicobar and then, back home land and fame.

The round-the-world odyssey was or nised by the Sapper foundation.

Indira Gandhi Memorial Boat Race

Cochin: (snakeboats) 1. Karicha Kainakary Village Sports Club. 2. Ja Thayankari, 3. Nadubhagom.

COVER FEATURE

SEOUL OLYMPICS: THE GOLD RUSH

"The Olympic movement tends to gather in radiant splendor, all the principles that work toward man's perfection" *— Baron Pierre de Coubertin*

No man is perfect. But what sets him apart rom his faunic counterpart is his conscious effort to achieve perfection. Has this quest ound the goal. Not really. May be it is Mother Nature's will that nothing else shall be perfect. f so, is not perfection an illusion?

But, like Milton sang: "All is not lost, the inconquerable Will.....", the search goes on. The Olympics is the ultimate manifestation of this search.

There was a time when we used to console outselves by saying that sports is the field where we forget our mutual hatred, where competition is healthy and the all pervading atmosphere is that of comrad[illegible]ut how paradoxical it is

birth of Olympics was closely related to military events. War was a way of life in ancient Greece and the games at the Olympia was held only to get a breathing time, to let the wounds heal.

The first Olympics in 776 B.C. was a one day event. The race of the stadium – running from one end to the other – was the only event. Times have changed. Olympics has now become the biggest show on earth, a multimillion extravaganza. But that 'breathing-time' aspect has not changed. We need the Olympics. We need respite from arms negotiations!

And thus comes the year of 1988. It's time for the 24th Olympiad, the once-in-four-years super show. That is exactly what it is going to be. Did you not watch the closing ceremonies of the Los Angeles Olympics, on T.V.? Watch out for Seoul. The show is going to be bigger.

Who ever suggested politics must be kept apart from sports must have been joking. For, olitics has become almost an intergral part of ports. Modern olympics has witnessed oycotts and counter boycotts, more than nce. The very existence of the Olympic ovement was put to test. But it survives.

The dark, threatening clouds of boycott are nce again casting shadows over the horizon f Seoul. When *Los Angeles* bid adieu to the 3rd games and Seoul put up the welcome anner, the first salvo of the threat of boycott as heard. North Korea wanted a share of the vents which was originally fully given to outh Koream. When the Eastern Bloc countries stood ready with Pyongyang for a boycott, haring became inevitable. Even then, the umber of events to be shared, raised a ontroversy. The International Olympic Committee has been unsuccessful to bring about a inal decision on this till December 31, 1987.

Governments can prove their macho by hreats and boycotts. They don't lose anything. t is the athlete, the competitor, the real hero f the games, who stands to lose. Ask *Eduin* oses. He was fored to sit back at home when a Moscow V. Beck of GDR won the 400 m urdles gold which should have been his.

Forget the 'not-winning-but-paricipating' art. For any athlete an Olympic gold is the ltimate aim. *Alfred Oerter* who won discuss old in four successive Olympics, each with ew records, said in Mexico in 1968: *"These re Olympics. You die for them"*. That's the rint.

The year of 1988 thus becomes very special. Not merely because this is a Leap Year. It is going to be a gigantic leaping year for the world's athletes. February gains an additional day and the world's best men and women stand to gain 237 Olympic gold medals. And so, its September, and not February, which is going to be the month of the year.

Olympics is coming to the East after 24 years. Last time, it was *Tokyo* in 1964. For colour and competition, Seoul has promised an eye-full. From what one saw at the Asiad, it is obvious that Seoul will keep her promise.

It is not always that a city gets a chance to do a full workout before staging an event like the Olympics. Seoul was lucky to have the last Asiad. They did it as a rehearsal and showed the world that technological and organisational brilliance is no one's monopoly.

The official 500-day countdown began on May-6, 1987. The games is to begin on September 17 and it will be curtains on October 2nd. The Seoul Olympic Organising Committee, with *Park Se Jik* as its president, has never lost its smile in organisational matters.

To bring the games as close to perfection as possible, preparations are stepped up to welcome 13,000 athletes and officials.

The participation will be in 23 official sports, two demostration sports and two exhibition sports. This is some kind of a record. 237 gold medals are at stake.

An additional attraction would be *Tennis*. Even though it is not a new entrant, it is for the first time that professional stars like *Boris Becker* and *Martina Navratilova* are allowed to compete. This only shows the changing attitude of the I.O.C. which usually holds to heart the status of amateur stars.

Even when the 'sharing controversy' goes on, the athletes are getting keyed up for the show. As it is always, the show stealer would be the track and field competitions. It is not undermining other events. But when it comes to individual brilliance in a field where it takes only split seconds from agony to ecstacy, track and field events have a special charm.

At Los Angeles, four years ago, America had topped the medal table with 83 gold, 61 silver and 30 bronze. Surprisingly, it was Romania the only entrant from the Eastern Block that came second with 20–16–17. Look at the difference in the medal tally. Had the Soviet

and East Germans come, would it not have been a different story? That's what boycott does to the value of competition.

But, even in their absence, Los Angeles saw the best ever track achievements in Olympics. One *Carl Lewis* was enough to rekindle the memories of the great old *Jesse Owens*. One *Mary Lou Retton* was enough to remind us of the graceful *Nadia Comaneci*.

Seoul could be a different experience, altogether. What it would be was flashed across the Olympic stadium in Rome during the world track and field meet of 1987. For the best in the world, Rome was a launching pad for Olympic glory. *Ben Johnson*, for example, hinted that he could do better at the Olympics. And, what Ben Johnson did in Rome was a world record of 9.83 seconds in 100 m sprint. If Los Angeles was Carl Lewis, Seoul could be Ben Johnson. Or will it be Edwin Moses? Or Carl himself?

There is one record which stands unconquered and haunts every one for quite a long time. That is *Bob Beamon's* leap of the century of 8.90 m in long jump (1968, Mexico). If at all anyone came near to breaking it, it was Carl Lewis. One can't forget the Russian Emmiyan too. Both of them have done around 8.80 m and Seoul could well be the previleged city to witness history rewritten.

Edwin Moses is still the 400 m hurdles' Monarch. But he is not unchallenged anymore. *Danny Harris* and *Siegfied Schmid* are in hot pursuit. Rome saw a photofinish between them. Seoul is waiting for more.

Seoul would also be watching *Daley Thompson*. The Dacathlon champ lost his world title to Voss in Rome. That was quite an upset. But Olympics has been his kingdom. There was only an American, *Bob Mathias* who had won two successive Olmpic decathlon golds (in '48 and '52). It is said that Daley had sent a postcard to Bob, before the 84 Olympics: "I am going to get you". He got him, alright. But Daley must now be on 'red-alert' for Seoul. A triple is unheard of in Olympic decathlon!

If the West was superiority in the men's

Olympics 1984, Los Angeles

Medals Table G-Gold, S-Silver, B-Bronze, T-Total

	G	S	B	T
United States	83	61	30	174
Romania	20	16	17	53
West Germany	17	19	23	59
China	15	8	9	32
Italy	14	6	9	32
Canada	10	18	16	44
Japan	10	8	14	32
New Zealand	8	1	2	11
Yugoslavia	7	4	7	18
South Korea	6	6	7	19
Britain	5	11	21	37
France	5	7	15	27
The Netherlands	5	2	6	13
Australia	4	8	12	24
Finland	4	2	6	12
Sweden	2	11	6	19
Mexico	2	3	1	6
Morocco	2	0	0	2
Brazil	1	5	2	8
Spain	1	2	2	5
Belgium	1	1	2	4
Austria	1	1	1	3
Portugal	1	0	2	3
Kenya	1	0	2	3
Pakistan	1	0	0	1
Switzerland	0	4	4	8
Denmark	0	3	3	6
Jamaica	0	1	2	3
Norway	1	2	3	6
Greece	0	1	1	2
Nigeria	0	1	1	2
Puerto Rico	0	1	1	2
Colombia	0	1	0	1
Egypt	0	1	0	1
Ivory Coast	0	1	0	1
Peru	0	1	0	1
Syria	0	1	0	1
Thailand	0	1	0	1
Ireland	0	1	0	1
Turkey	0	0	3	3
Venezuela	0	0	3	3
Algeria	0	0	2	2
Cameroon	0	0	1	1
Dominican Republic	0	0	1	1
Iceland	0	0	1	1
Chinese Taipei	0	0	1	1
Zambia	0	0	1	1

events, it is the East which rule the women's competitions. The days of *Zola Buds* and *Mary Slanleys* and *Marita Kochs* seem to be over. These are days of *Gladischs* and *Dreschlers* and Kostadinovas. The only woman world record breaker at Rome was *Stefka Kostadinova* of Bulgaria. She rewrote her own world mark in high jump.

Evelyn Ashford, the Olympic champion and the world record holder in 100 m. sprint seems to have found her heir apparent in *Silke Gladisch,* the East Germany. *Marita Koch's* world record in 200 m is under threat now that it is equalled by Heike Dreschler also of GDR (21.71 sec).

What Edwin Moses is to 400 m Hurdles is *Jackie Jooyner Kersee* to women's heptathlon. Her 7158 world record is unchallenged. She came near to breaking it in Rome. If she can better it, it would be at Seoul.

India has only very modest dreams abo Seoul Olympics. There was a time wh Hockey was our one and only card-trump otherwise. But the card has lost its shine. In now relies on *P.T. Usha* for a medal. S reached one hundredth of a second away fr it in Los Angeles. Can she do it in Seou

So, it is over to Seoul. This September is the champions. The gigantic Olympic stadiu is waiting for them. The sprawling Olymp park is ready. It took four years from the city Hollywood glamour to the city of orien splendor.

Even when the winner takes it all, winning not all. To be among the fighters, is in its great. To watch some one win is in itself, pleasure.

If perfection is an illusion, the Olympi makes it grand.□

THE MOVEMENT

The ancient Olympian: Greek art-work

The modern Olympic Movement is one the few truly heroic ventures of our times. not only enjoys the participation and suppo of many famous names in many fields, but also helps create new heroes by providing t motivation to strive for excellence and t opportunity to demonstrate that one h achieved it. It appeals to everyone, penetrati national, racial and ideological barriers a involving as many countries as the Unit Nations. The games have outlived their dou ters and gained in popularity for almost century now, providing that their revival is n just a passing fad.

This movement is heir to one of the worl oldest and longest lasting traditions, for t ancient Olympics began before the Gold Age of Greece and continued for more than millennium without interruption. The vario legends about the origin of the games cann be substantiated; but it is certain that they we held at Olympia, near the northwestern co of the Peloponnesus, about eight centuri before Christ. The games were run from ea on jointly by Elis and Sparta, but eventually t Eleans had virtually complete control.

They conducted the games with stern fa ness, and under them the Olympics gain greatly in importance. Competing just for t glory of achievement, winners came to

Baron Pierre de Coubertin: the man who revived Olympics.

respected throughout the Western world. Even noblemen and royalty sought honours at Olympia, running side by side with commoners, all hoping to be awarded the coveted olive wreath. The games reached their pinnacle during the fourth and fifth centuries B.C., by which time the simple competitions and rites had evolved into a seven-day celebration of great athletic and cultural accomplishments.

The facilities of ancient Olympia were more modest than those of today. The stadium, where most of the contests were held, was about 190 m long and 32 m wide. Only judges competitors and others directly involved with the competitions were allowed inside the stadium; spectators, who may have numbered in the tens of thousands, vied for good vantage points on the hillsides all around. There were also a hippodrome for chariot races, building where the athletes could practice, treasure houses and religious structures.

In those ancient days, contestants had to be Greek freemen and were required to undergo long training. Even the judges were given special instruction for ten months before the games.

At first there was only one event in the games: a footrace of less than 200 meters. Gradualy more and more events were added until, by the 77th Olympiad, the games took five days with an additional two for religious rites.

By the fourth century of our era, the influence of politicians and the self-seeking wealthy brought corruption to the games and they were abolished by Theodosius I, emperor of Rome, in A.D 394

But the virtues and worthy ideals of the

The Olympic torch dates from the Games of the 11th Olympiad.

Olympics were not to be lost to us for ever. When Pierre de Coubertin, in the latter part of the nineteenth century, sought a means to produce men who were more energetic, upright, and disciplined through pedagogy, he decided that sports were a force that could revitalize liberal education. This led him to the realization that a new understanding of amateurism was needed for the youth of different nations to compete equally in sporting events, and ultimately, to the idea of reinstituting the Olympic games.

These modern games were to be true successors of the ancient Olympics, founded on high ideals and morals. To Coubertin we owe the recreation of the Olympic philosophy that the practice of amateur sports can balance spiritual values and physical faculties and play an important part in the development of both the individual and human kind in general.

The historic Congress of Paris, held at the Sorbonne in 1894, was attended by 79 delegates representing 49 organizations in France, England, the United States, Greece, Russia, Sweden, Belgium, Italy and Spain, Hungary, Germany, Bohemia, Holland and Australia sent proxies or letters. The Congress was swept by the idea of re-establishing the Olympics and set up the International Olympic Committee. In spite of all the initial difficulties, the first modern Olympic games were held in Athens in 1896, a landmark in modern history.

There have been problems along the way, but the genius of this movement spoke to the heart of modern man; and it has grown to become a powerful force for international understanding and friendship, contributing to harmony and progress that spills over beyond the bounds of amateur sport to benefit all the people of the world.

ON YOUR MARK

The first female diver jumps from the 10-meter platform, tumbles elegantly through the air and gently enters the water. Thus begins the 1988 Seoul Summer Olympic competition.

One of the main contenders for a gold medal among the female divers competing at the pool in Seoul's Olympic Park will probably be Zhou Jihong, the petite, 97-pounder who gave China its first gold medal ever in Olympic diving at the 1984 Los Angeles games. Her nation's participation in the Seoul games will how that the Olympic spirit continues to burn strong as countries around the globe compete together in Seoul.

Fifteen days later, an exhausted runner, after covering 42.195 km, will cross the finish line in the Olympic Stadium, thereby bringing the cometition to a close. Likely competitors in the marathon will be Carlos Lopes, who won the men's event at the 1984 Olympics, world champion Rob de Castella of Australia, Toshihiko Seko of Japan and world record-holder Alberto Salazar of the United States.

The filed will be wide open, however. At the 37-km mark, an obscure runner from any nation could come out of nowhere to pull off an upset or even to set a new world record. The marathon, to be run along the Han River, will begin and end at the Olympic Stadium in south-eastern Seoul.

The Seoul Olympic competition will open with a splash and will close with a grueling test of endurance. Seoul rightly can boast of having the honour to host the 1988 Olympic Games. The choice of Seoul as the host city for the 24th Olympics, made in Baden Baden on September 30, 1981 at the 84th General Assembly of the International Olympic Committee, was wonderful news for Koreans.

According to the final schedule approved in March 1987 by the International Olympic Committee and the International Sports Federation, the games will begin at 3 p.m. on September 17 with women's platform diving, following the opening ceremony, which will last three hours and 20 minutes (from 10.30 am to 1.50 pm). The Olympic competition will end with the men's marathon, scheduled to begin at 2.30 p.m on October 2, and the games will come to an official end with the closing ceremony, slated for 7 pm to 8.20 pm.

Seoul Olympic Orgnizing Committee (SLOOC) officials say that the first gold medal will be awareded in the women's air rifle event at 10 am on September 18. The final day of competition — Oct. 2, will produce the most gold medalists as the winners in 39 finals will

be determined.

During the September 17 – October 2 games period, athletes will vie for 237 gold medals in 23 sports at sites in Seoul and four other cities.

In addition, there will be two demonstration sports – takewondo and baseball – and three exhibition events – bowling, badminton and women's judo.

With a gradual approach of the lighting of the Olympic torch, Seoul Olympic organizers have launched a campaign to "arouse public interest" in the games and to bring some 29,000 participants, comprising athletes, officials and journalists, from the 167 member nations of the International Olympic Committee to Seoul.

Sports experts speculate that some gold medalists in the 1984 Los Angeles Olympics will have a tough time defending their Olympic titles against other top athletes whom they were unable to meet in previous Olympiads due to boycotts. These athletes will finally be able to prove beyond doubt their ability to go *altius, citius, fortius* which is Latin means "higher, faster, stronger".

The sacred flame for the 1988 Seoul Olympics will be ignited by the rays of the sun at the Hera Temple in Olympia, Greece, on August 23 of 1988. The Olympic flame will be carried for three days through such historic sites as Patrai, Korinthos and Athens by 380 Greek runners.

The torch transfer ceremony will take place at the Pan Athens Stadium, the venue of the First Olympic Games, at 6 pm on August 25, when the flame is formally turned over to Korean officials to begin the trip that will carry it to Seoul.

A special chartered Korean Air plane will bring the flame to the Southern Korean island of Cheju-do on August 27, via Bahrain and Bangkok, on a 29-hour flight. [illegible] arriving at Cheju Island, the flame wi[illegible] on a

Seoul Olympics: the Programme

Opening Ceremony	Sept. 17, 1988
Archery	Sept. 27, Oct. 1
Athletics	Sept. 23–26; Sept. 28–Oct. 2
Basketball	Sept. 17–30
Boxing	Sept. 17–19; Oct. 1–2
Canoeing	Sept. 26–Oct. 1
Cycling	Sept. 18; Sept. 20–26
Equestrian	Sept. 19–28; Sept. 30; Oct. 2
Fencing	Sept. 20–24; Sept. 26–30
Football	Sept. 17–22; Sept. 25; Sept. 27; Sept. 29–Oct. 1
Gymnastics	Sept. 18–25; Sept. 28–30
Handball	Sept. 20–Oct. 1
Hockey	Sept. 18; Sept. 20–Oct. 1
Judo	Sept. 25–Oct. 1
Modern Pentathlon	Sept. 18–22
Rowing	Sept. 19–25
Shooting	Sept. 18–24
Swimming	Sept. 18–25
Diving	Sept. 17–20; Sept. 26–29
Synchronized	Sept. 26–28; Sept. 30–Oct. 1
Water Polo	Sept. 21–23; Sept. 26–27; Sept. 30–Oct. 1
Table Tennis	Sept. 23–Oct 1
Tennis	Sept. 20–Oct. 1
Volleyball	Sept. 17–20; Sept. 22–Oct. 2
Weightlifting	Sept. 18–22; Sept. 24–29
Wrestling	Sept. 18–22; Sept. 27–Oct. 1
Yachting	Sept. 20–23; Sept. 26–28
Closing Ceremony	Oct. 2

True Grit: Seoul Is Ready

The smile lingers. Seoul smiles when she pins the flower of welcome on your lapel. The smile is that of confidence, an expression born out of a calm mind. They call Seoul the 'City of morning calm.'

I remember the sten guns too. There were too many, in and around the Seoul Sports Complex. There were people restless and angry. There were riots in the back streets. But the Asiad arena was left alone. The rioter knew that the games meant much for national pride and prestige, and that is one thing the Koreans will never give up.

Asian games was the concrete evidence South Korea's ability to achieve what they aimed at. It is an understatement to say that Asian games was success non pareil. Technically, organisationally, qualitatively the Seoul meet was the symbol of the emergence of a tiny Asian country as one of the super powers of this century.

Forget the smile. The Koreans are a serious people. True grit. Hard work. A keen sense of professionalism in everything they do. There was a time it was only Japan in the Orient. Now, there are two. The Daewoos and the Hyundais are flooding the western market. Their ship building and construction companies are among the best. Their communication and transport systems are ultra modern. And, they are very much in the field of blue chips.

Sprawling in the Han river basin, Seoul is flanked by rocky, wooded mountains. This was the capital of the Yi Dynasty. The city is 605.33 square kilometres in area. The population is about 10 million strong. The streets are wide and clean. On the newly reclaimed Youido Island in the Han river, towering above all, is the 63 storey Daehan Life Insurance Building, Korea's tallest skyscraper.

We start from Kimpo to the Seoul Sports Complex, the main venue of the 24th Olympic games. It was also the main venue of the Asiad. It is a 40 minute ride from the airport. The freeway is eight-lane wide. The sky is usually clear in September-October, the time of the games. The climate is pleasantly cool.

On the way, near the Han river you see the five storey building which housed the Main Press Centre for the Asiad. A tinge of nostalgia. Its vast computer net work which gave any information under the sun, have been dismantled for the new, improved Olympic Press Centre, elsewhere. The river embankments have been concreted and converted into huge parking lots.

Cross the river, turn left. There is the gigantic sports complex. It occupies an area of 545000 sq m. The complex was completed in 1984. The showpiece in the complex is the Olympic stadium. The $ 57 m stadium is designed in the form of a typical Yi dynasty porcelain vase. On its two tier stands, covered by a curving roof, it can accommodate upto 100,000 people. The giant video score board on the southern side gives you upto the minute information on what is happening in the stadium and at other stadia as well. The timing equipments are from Switzerland's Omega. The stadium has a medical clinic, a dining hall, a conference room, it's own

press rooms and athletes' retiring rooms. The track is laid with polyurethene. This is the venue of the track and field events.

Adjacent to the main stadium is the warm-up stadium with its own polyurethene track. The opening and closing ceremonies also will be held at the Olympic Stadium.

The Chamshil Gymnasium for basketball can accommodate 20,000 persons. There are five practice courts inside. Adjacent to it is the Chamshil Students' Gymnasium where boxing bouts will be held. It's capacity is 7500.

Swimming competition will be held at the Chamshil Indoor Swimming pool, inside the Sports Complex and at the Olympic Park Indoor Pool. The Chamshil Pool can

seat 4500 people. Swimming, diving, synchronised swimming and water polo are to be held at these two venues. The olympic park pool has a seating capacity of 10,000. Both have practice pools too.

Walk along the tree-lined avenues inside the complex. Visit the soft drinks kiosks and sit by the fountain. Have your favourite hamburger. The next stop is at the Olympic Park.

Four km towards the west lies the sprawling 2908200 sq m Olympic Park. An architectural wonder. Wooded park lands, rock gardens, wide avenues. The park includes the Olympic Village, the Press Village, a 6000 capacity veldrome and three gymnasiums with a combined capacity of 26000 for the gymnastics, fencing and weightlifting events. Also it includes an indoor swimming pool, 18 hard tennis courts and the olympic centre, the headquarters and nerve centre of the 24th Olympiad.

The 15 storey olympic centre contains conference rooms, a communication room, printing shop, show room and offices. This is from where the whole games will be controlled. The Olympic Park which has become a major tourist spot in Seoul will be the venue of cultural, sculptoral and art festivals during the olympiad.

About 10 km from the park is the Songnam Stadium, the venue of hockey matches. 25000 people can watch the game here. Football is to be held at the olympic stadium, Tongdaemun Stadium and four other provincial stadia.

There is an Equestrian Park, 16 km from the village, at Kwachon, a typical Seoul suburb. The park can hold 30,000 spectators. Wondang Ranch, 40 km north of Seoul is another venue for equestrian events.

Beside the Han is the newly constructed Regatta course. 25000 people can watch the canoers and rowers in action.

The national university and the Hanyang university gymnasiums will be the sites for table tennis and volleyball matches. The rifles and pistols will come into action at the Taenung international shooting range. It's 18 km away from the olympic village.

Pusan is a coastal city, 480 km southeast of Seoul. Located on Suyong Bay here is the Pusan Yachting Centre. The centre extends over an area of 23812 sq km. There are three racing courses.

The transport systems, sub ways, buses and taxis, are faultless. You miss the peak-hour traffic jams. The express way connects Seoul with suburban cities and towns

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□ **Raghava Varma** [illegible] credited reporter to the 10th As[illegible] Seoul.

22-day northward journey to Seoul's Olympic Stadium, where it will burn from September 17 until the games close on October 2.

The relay of the Seoul Olympic flame will cover a single, winding 4,066 kilometer course over host South Korea's land, sea and air.

Greece, the host country of the ancient Games, will, by tradition, lead the parade nations into the Olympic Stadium in opening and closing ceremonies. It will followed by Ghana and Gabon as the count enter in the order of the Korean alpha South Korea will enter last, following Hong Kong delegation around the stadiu oval track.

Olympic Games Venues & Dates

1.	1896	Athens	April 6–15
2.	1900	Paris	May 20-Oct. 28
3.	1904	St. Louis	July 1-Nov. 23
‡	1906	Athens	April 22-May 2
4.	1908	London	April 27-Oct. 31
5.	1912	Stockholm	May 5-July 22
6.	1916	Berlin	Not held owing to war
7.	1920	Antwerp	April 20-Sept. 12
8.	1924	Paris	May 4-July 27
9.	1928	Amsterdam	May 17-Aug. 12
10.	1932	Los Angeles	July 30-Aug. 14
11.	1936	Berlin	August 1–16
12.	1940	Tokyo, then Helsinki	Not held owning to war
13.	1944	London	Not held owing to war
14.	1948	London	July 29-Aug. 14
15	1952	Helsinki	July 19-Aug. 3
16.	1956	Stockholm‡‡	June 10–17
		Melbourne	Nov. 22 – Dec. 8
17.	1960	Rome	Aug. 25 – Sep. 11
18.	1964	Tokyo	Oct. 10–24
19.	1968	Mexico City	Oct. 12–27
20.	1972	Munich	Aug. 26-Sep. 10
21.	1976	Montreal	July 17-Aug. 1
22.	1980	Moscow	July 19-Aug. 3
23.	1984	Los Angeles	July 28-Aug. 12
24.	1988	Seoul	Sep. 17-Oct. 2
25.	1992	Barcelona	Undecided

‡ 1906 Games held to mark the 10th Anniversary of the modern games but not numbered since it was not held in four year sequence.
‡‡ Only the Equestrian events were held here.

THE GREATEST OLYMPIANS

Jesse Owens, USA: Born in Danville on September 12, 1912 James Cleveland Owens was the son of a black sharecropper and the grandson of a slave. In the 11th Olympics in Berlin in 1936, Owens shocked the 'white Aryan Superman' Adolf Hitler by winning four golds. He won the 100 m in 10.3 sec, 200 m in 20.7 sec, long jump with 8.06 m and anchored the American 4×100 m relay quarter to the gold in a world record of 39.8 sec. Owens died in Tucson, on March 31, 1980. In 1984 a street in Berlin was named after him.

Johnny Weissmuller, USA: Born in Windber, Austria on June 2, 1904, Johnny Weissmuller was the son of an emigre coalminer. He became the first man in the world to swim the 100 metre in under one minute: he did it under 58.6 sec. In the 1924 Paris Olympics he won gold in 100 m freestyle, 400 m freestyle, 4×200 m freestyle relay and bronze in waterpolo. In the 1928 Amstardam Olympics he won gold in 100 m freestyle and 4×200 m freestyle relay. Johnny Weissemuller is better known for playing Tarzan on the screen in 11 films in 16 years. He died in Mexico on January 20, 1984.

Edwin Moses, USA: Born in Laguna Beach, California on August 31, 1955 Edwin Moses, a student of astrophysics, took to hurdling only five months before the Montreal Olympics in 1976. He won gold in Montreal in a world record of 47.64 sec. He won it in Los Angeles too. Moses is the second man in Olympic history to retain his title. Glen Davis of USA won the event in 1956 and 1960. But Moses retained his gold after a gap of eight years. Because of the

American boycott, Moses missed the Moscow Olympics of 1980. Even since 1977, Moses has not lost his pet 400 m Hurdles more than twice. His German wife Myrella helps him in practice. Moses trains with micro electrodes attached to his arms, legs and trunk, connected by radio monitor to a computer. He holds the world record at 47.02 secs (Koblenz, 1983).

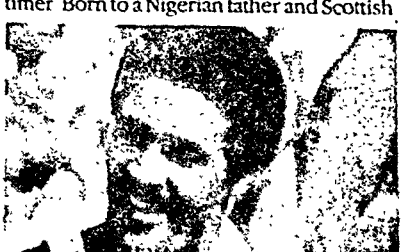
Carl Lewis, USA: Frederick Carlton Lewis was born in Texas on July 1, 1961. His parents were track coaches in Willingboro, New Jersey. The sand pit at home was his first training ground. Carl Lewis started getting national attention from 1979. At the

1981 World Cup at Rome, Lewis won long jump gold. His sprinting ability was noted in 1982. In 1983, at the Helsinki world cup, he won 3 golds and stole international lime tight. At Los Angeles Olympics in 1984 he won four golds — in 100 m, 200 m, 4×100 Realy, long jump and was acclaimed to be the successor of Jesse Owens

Sebastian Coe, UK: Britain's super athlete was born on September 29, 1956 in London. One of world's all time greatest middle distance runners, Sebastian Coe has a natural flair for running. This was developed into a fine art by his father Peter Coe. He supervised his son's training to the minutest detail. At the Moscow Olympics, Coe lost his favourite 800 m to Steve Ovett, but won the 1500 m. This was repeated at Los Angeles. In Olympics no body else had retained 1500 m title. Coe has held world

records in 800 m, 1000 m, 1500 m and the mile.

Daley Thompson, UK: Hailed as the greatest all rounder athlete in the world, Francis Daley Thompson was bron in London on July 30, 1958 Thompson was reigning world, Olympic, Commonwealth and European decathlon champion At the World Cup in rome in 198", he was beaten But this loss is one of the very few in his career The Thompson saga began at Farney Close School in 1965 His raw talent was moulded into champion stuff by Bob Mortimer Born to a Nigerian father and Scottish



Mother, Daley Thompson is the second man to win two Olympic decathlon twice – in 1980 and 84.

Nadia Comaneci, Romania: Montreal Olympics saw the advent of a gymnas legend – Nadia Comaneci. She was born November 1961 in Gheorghe Dej. S scored the first ever perfect 10 in gymn tics. The computerised score board was r programmed to show her score. It flash

1 00. She won gold in combined excercis (individual) asymmetrical bars, beam, s ver in combined excercises (team) a bronze in floor excercises. At the Mosc Olympics she won gold on beam, floor e cercises and silver in combined excercis (team and individual). In Romania, whe the state grooms sportsman, Nadia got t best of opportunities and equipments groom her inborn talents.

Dawn Fraser, Australia: Born in B main, New Southwales on September 1937, Dawan Fraser set an incredible

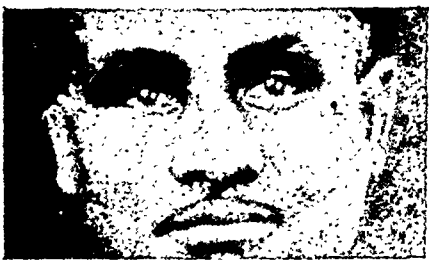
world records and won four gold and fo silver medals in three Olympics (1956, and 64). Her sensational success story sp ned between 1955 and 1964. Before the Tokyo Olympics, her car rammed into parked lorry. Her mother was killed. Fra chipped a vertebra in the neck. She had be in plaster for six weeks. But with rema able grit, she made it to Tokyo and won 1 m freestyle gold in record time (59.5 s

and silver in 4×100 freestyle relay. She is the only swimmer, male or female to win the same event (100 m freestyle) thrice in Olympics.

Alfred Oerter, USA: Oerter who won Discuss Throw gold in four successive olympics (1956, 60, 64 and 68) was born in Astoria, New York on September 19, 1936.

He made olympic debut at 20 at Melbourne (1956). With the very first throw, he broke the Olympic record (56.36 m). Before 1960, he broke the world record four times. Not only is his feat of 4 successive golds in the same event unparallelled in olympic history, but each time he also set a new olympic record. He once said: "these are the Olympics; you die for them".

Dhyan Chand, India: Born in August 1905, Dhyan Chand was the most gifted and artistic international hockey player. He lead India to Olympic gold in 1936 Berlin Olympics. India beat Germany 8–1 in the final



and Dhyan Chand scored 6 goals. His olympic debut was in Amsterdam 1928. There also India won gold. In 1932 at Los Angeles India again triumphed. After the Berlin victory in '36 Hitler is said to have offered Dhyan Chand the post of Colonel in the German army if he migrated. Dhyan Chand refused. He was honoured with Padma Bhushan by the Govt. of India. He died on December 3, 1979.

Mark Spitz, USA: Born in Modesto, California in February 1950, Mark Andrew Spitz created a record by winning seven swimming gold medals in one Olympics – 1972 Munich. All the seven attempts were marked by world records. Parents Arnold and Lenore Spitz introduced Mark to swimming. On his eleventh birthday he broke 17 national junior records. In 67 Mark was nominated the World Swimmer of the year by Swimming World magazine. In '68 olym-

pics he attempted six golds but won two (relays) one silver and one bronze.

Emil Zatopek, Czechoslovakia: Born in Koprivnice, Moravia on September 19, 1922, Emil Zatopak is known as the Czech Express. He is deservedly the true successor of Paavo Nurmy. In a 12-year career, Zatopek won 4 gold medals and one silver in the olympics and set 18 world records. Before him, in 1952, nobody ever dreamt of winning the distance treble: 5,000 m, 10,000 m and Marathons. No one else has achieved it till today. In the London Olympics of 1948 he won the gold in 10,000 m and silver in 5,000 m. In the 1952 Helzinki meet he won gold in 5,000 m, 10,000 m and Marathon.

GOLD MEDALLISTS

The following official Olympic abbreviations have been used for the names of countries.

AFG *Afghanistan*
AHO Netherlands Antilles
ALB Albania
ALG Algeria
ARG Argentina
ARS Saudi Arabia
AUS Australia, (or Australia representing a combined team from Australia and New Zealand in the years up to and including 1912)
AUT Austria
BAH Bahamas
BAR Barbados
BEL Belgium
BER Bermuda
BIR Burma
BOL Bolivia
BRA Brazil
BUL Bulgaria
CAF *Central Africa*
CAN Canada
CEY Ceylon (up to 1972)
CGO Congo Republic
CHA Chad
CHI Chile
CIV Ivory Coast
CMR Cameroon Republic
COK Congo Kinshasa
COL Colombia
CRC Costa Rica
CUB Cuba
DAH Dahomey
DEN Denmark
DOM Dominican Republic
ECU Ecuador
EGY Egypt (or United Arab Republic)
ESP Spain
ETH Ethiopia
FIJ Fiji
FIN Finland
FRA France
GAB Gabon
GBR Great Britain
GDR German Democratic Republic 1968 on
GER German Federal Republic (Germany until 1968)
GHA Ghana
GRE Greece
GUA Guatemala
GUI Guinea
GUY Guyana
HAI Haiti
HBR British Honduras
HKG Hong Kong
HOL Netherlands
HON *Honduras*
HUN Hungary
INA Indonesia
IND *India*
IRN Iran
IRQ Iraq
IRL Ireland
ISL *Iceland*
ISR Israel
ITA Italy
ISV Virgin Islands
JAM Jamaica
JOR Jordan
JPN Japan
KEN Kenya
KHM Cambodia
KOR South Korea
KUW Kuwait
LBA Libya
LBR Liberia
LES Lesotho
LIB Lebanon
LIE Liechtenstein
LUX Luxembourg
MAD Madagascar
MAL Malaysia
MAR Morocco
MAW Malawi
MEX Mexico
MGL Mongolia
MLI Mali
MLT Malta
MON Monaco
MRI Mauritius
NCA Nicaragua
NEP Nepal
NGR Nigeria
NIG Niger
NOR Norway
NZL New Zealand
PAK Pakistan
PAN Panama
PAR Paraguay
PER Peru
PHI Philippines
POL Poland
POR Portugal
PRK North Korea
PUR Puerto Rico
RHO Rhodesia
ROC Republic of China
ROM Romania
RUS Russia until 1917
SAL *El Salvador*
SEN Senegal
SIN Singapore
SLE Sierra Leone
SMR San Marino
SOM Somali Republic
SRI Sri Lanka (formerly Ceylon)
SUD Sudan
SUI Switzerland
SUR Surinam
SWE Sweden
SWZ Swaziland
SYR Syria
TAN Tanzania
TCH Czechoslovakia
THA Thailand
TOG *Togoland*
TRI Trinidad and Tobago
TUN Tunisia
TUR Turkey
UAR *United Arab Republic*
UGA Uganda
URS USSR
URU Uruguay
USA *United States of America*
VEN Venezuela
VNM Viet Nam
VOL Upper Volta
YUG Yugoslavia
ZAI Zaire
ZAM Zambia
ZIM Zimbabwe

Other abbreviations for countries

ANT Antilles (West Indies)
BOH Bohemia
ENG England
EST Estonia
LAT Latvia
LIT Lithuania
RUS (Tsarist) Russia
SAF South Africa
SCO Scotland

The abbreviations used in m
urements follow British Stand
350. Other abbreviations used
fits faults; pts points, nda no
available.

Approximate Metric Guide

1 metre (m)	3ft 3½ in
100m	109yd 1 ft 1 in
200m	218yd 2 ft 2 in
400m	437yd 1 ft 4 in
800m	874yd 2 ft 8 in
1,000m	1,093yd 1 ft 10 in
1,500m	1,640yd 1 ft 3 in
1609.3m	1 mile
3,000m	1 mile 1,520yd 2ft 6i
5,000m	3 miles 188yd 0ft 2in
10,000m	6 miles 376yd 0ft 4in
15km	9 miles 564yd 0ft 9in
20km	12 miles 752yd 0ft 8i
30km	18miles 1130yd 1ft 0i
50km	31miles 119yd 2ft 10i

ARCHERY (MEN)

Double Men's International Round
arrows each at 90, 70, 50 and 30 metr
Not held before 1972.

1972 J Williams USA	2,528
1976 D. Pace USA	2,571
1980 T. Poikolainen FIN	2,455
1984 D. Pace USA	2,616

ARCHERY (WOMEN)

Double Women's International Ro
(36 arrows each at 70, 60, 50 and
metres). Not held before 1972.

1972 D. Wilber USA	2,424
1976 L. Ryon USA	2,499
1980 K. Losaberidze URS	2,491

1984 Hyang-Soon Seo KOR 2,568 pts

ASSOCIATION FOOTBALL

Not held before 1900.
1900 GBR
1904 CAN
1908 GBR
1912 GBR
1920 BEL
1924 URU
1928 URU
1932 Not held
1936 ITA
1948 SWE
1952 HUN
1956 URS
1960 YUG
1964 HUN
1968 HUN
1972 POL
1976 GDR
1980 TCH
1984 FRA

ATHLETICS (MEN)

100 Metres

1896	T. Burke USA	12.0 sec
1900	F. Jarvis USA	11.0 sec
1904	A. Hahn USA	11.0 sec
1908	R. Walker SAF	10.8 sec
1912	*R. Craig USA*	*10.8 sec*
1920	C. Paddock USA	10.8 sec
1924	H. Abrahams GBR	10.6 sec
1928	*P. Williams CAN*	*10.8 sec*
1932	E. Tolan USA	10.3 sec
1936	J. Owens USA	10.3 sec
1948	H. Dillard USA	10.3 sec
1952	L. Remigino USA	10.4 sec
1956	B. Morrow USA	10.5 sec
1960	A. Hary GER	10.2 sec
1964	R. Hayes USA	10.0 sec
1968	J. Hines USA	9.9 sec
1972	V. Borzov URS	10.14 sec
1976	H. Crawford TRI	10.06 sec
1980	A. Wells GBR	10.25 sec
1984	C. Lewis USA	9.99 sec

200 Metres

Not held before 1900

1900	J.W. Tewksbury USA	22.2 sec
1904	A. Hahn USA	21.6 sec
1908	R. Kerr CAN	22.6 sec
1912	R. Craig USA	21.7 sec
1920	*A. Woodring USA*	*22.0 sec*
1924	J. Scholz USA	21.6 sec
1928	P. Williams CAN	21.8 sec
1932	E. Tolan USA	21.2 sec
1936	J. Owens USA	20.7 sec
1948	M. Patton USA	21.2 sec
1952	A. Stanfield USA	20.7 sec
1956	B. Morrow USA	20.6 sec
1960	L. Berutti ITA	20.5 sec
1964	H. Carr USA	20.3 sec
1968	T. Smith USA	19.8 sec
1972	V. Borzov URS	20.0 sec
1976	D. Quarrie JAM	20.23 sec
1980	P. Mennea ITA	20.19 sec
1984	C. Lewis USA	19.80 sec

400 Metres

In 1908 a re-run was ordered after J.C. Carpenter USA was disqualified in the final. Halswelle was the only competitor.

1896	T. Burke USA	54.2 sec
1900	M. Long USA	49.4 sec
1904	H. Hillman USA	49.2 sec
1908	*W. Halswelle GBR*	*50.0 sec*
1912	C. Reidpath USA	48.2 sec
1920	B. Rudd SAF	49.6 sec
1924	*E. Liddell GBR*	*47.6 sec*
1928	R. Barbuti USA	47.8 sec
1932	W. Carr USA	46.2 sec
1936	A. Williams USA	46.5 sec
1948	A. Wint JAM	46.2 sec
1952	G. Rhoden JAM	45.9 sec
1956	C. Jenkins USA	46.7 sec
1960	O. Davis USA	44.9 sec
1964	M. Larrabee USA	45.1 sec
1968	L. Evans USA	43.8 sec
1972	V. Matthews USA	44.66 sec
1976	A. Juantorena CUB	44.26 sec
1980	V. Markin URS	44.60 sec
1984	A. Babers USA	44.27 sec

800 Metres

1896	E. Flack AUS	2 min 11.0 sec
1900	A. Tysoe GBR	2 min 01.2 sec
1904	J. Lightbody USA	1 min 56.0 sec
1908	M. Sheppard USA	1 min 52.8 sec
1912	J. Meredith USA	1 min 51.9 sec
1920	A. Hill GBR	1 min 53.4 sec
1924	D. Lowe GBR	1 min 52.4 sec
1928	D. Lowe GBR	1 min 51.8 sec
1932	T. Hampson GBR	1 min 49.7 sec
1936	J. Woodruff USA	1 min 52.9 sec
1948	M. Whitfield USA	1 min 49.2 sec
1952	M. Whitfield USA	1 min 49.2 sec
1956	T. Courtney USA	1 min 47.7 sec
1960	*P. Snell NZL*	*1 min 46.3 sec*
1964	P. Snell NZL	1 min 45.1 sec
1968	R. Doubell AUS	1 min 44.3 sec
1972	*D. Wottle USA*	*1 min 45.9 sec*
1976	A. Juantorena CUB	1 min 43.50 sec
1980	*S. Ovett GBR*	*1 min 45.4 sec*
1984	J. Cruz BRA	1 min 43.00 sec

1,500 Metres

1896	E. Flack AUS	4 min 33.2 sec
1900	C. Bennett GBR	4 min 06.2 sec
1904	J. Lightbody USA	4 min 05.4 sec
1908	M. Sheppard USA	4 min 03.4 sec
1912	A. Jackson GBR	3 min 56.8 sec
1920	A. Hill GBR	4 min 01.8 sec
1924	P. Nurmi FIN	3 min 53.6 sec
1928	*H. Larva FIN*	*3 min 53.2 sec*
1932	L. Beccali ITA	3 min 51.2 sec
1936	J. Lovelock NZL	3 min 47.8 sec
1948	*H. Eriksson SWE*	*3 min 49.8 sec*
1952	J. Barthel LUX	3 min 45.1 sec
1956	R. Delany IRL	3 min 41.2 sec
1960	H. Elliott AUS	3 min 35.6 sec
1964	P. Snell NZL	3 min 38.1 sec
1968	K. Keino KEN	3 min 34.9 sec
1972	P. Vasala FIN	3 min 36.3 sec
1976	J. Walker NZL	3 min 39.17 sec
1980	S. Coe GBR	3 min 38.4 sec
1984	S. Coe GBR	3 min 32.53 sec

5,000 Metres

Not held before 1912

1912	H. Kolehmainen FIN	14 min 36.6 sec
1920	J. Guillemot FRA	14 min 55.6 sec
1924	P. Nurmi FIN	14 min 31.2 sec
1928	V. Ritola FIN	14 min 38.0 sec
1932	L. Lehtinen FIN	14 min 30.0 sec
1936	G. Hockert FIN	14 min 22.2 sec
1948	G. Rieff BEL	14 min 17.6 sec
1952	E. Zatopek TCH	14 min 06.6 sec
1956	V. Kuts URS	13 min 39.6 sec
1960	M. Halberg NZL	13 min 43.4 sec
1964	*R. Schul USA*	*13 min 48.8 sec*
1968	M. Gammoudi TUN	14 min 05.0s
1972	L. Viren FIN	13 min 26.4 sec
1976	L. Viren FIN	13 min 24.76 sec
1980	M. Yifter ETH	13 min 21.0 sec
1984	S. Aouita MAR	13 min 05.59 sec

10,000 Metres

Not held before 1912

1912	H. Kolehmainen FIN	31 min 20.8 sec
1920	P. Nurmi FIN	31 min 45.8 sec
1924	V. Ritola FIN	30 min 23.2 sec
1928	P. Nurmi FIN	30 min 18.8 sec
1932	J. Kusocinski POL	30 min 11.4 sec
1936	I. Salminen FIN	30 min 15.4 sec
1948	E. Zatopek TCH	29 min 59.6 sec
1952	E. Zatopek TCH	29 min 17.0 sec
1956	V. Kuts URS	28 min 45.6 sec
1960	P. Bolotnikov URS	28 min 32.2 sec
1964	B. Mills USA	28 min 24.4 sec
1968	N. Temu KEN	29 min 27.4 sec
1972	*L. Viren FIN*	*27 min 38.4 sec*
1976	L. Viren FIN	27 min 40.38 sec
1980	M. Yifter ETH	27 min 42.7 sec
1984	A. Cova ITA	27 min 47.54 sec

Marathon

The standard distance of 42.195 m (26 miles 385 yd) was established in 1908 and has been retained since 1924. In other years the distance has varied.

1896	*S. Louis GRE*	*2 hr 58 min 50.0 s*
1900	M. Theato FRA	2 hr 59 min 45.0 s
1904	T. Hicks USA	3 hr 28 min 53.0 s
1908	J. Hayes USA	2 hr 55 min 18.4 s
1912	K. McArthur SAF	2 hr 36 min 54.8 s
1920	H. Colehmainen FIN	2 hr 32 min 35.8 s
1924	A. Stenroos FIN	2 hr 41 min 22.6 s
1928	M. El Ouafi FRA	2 hr 32 min 57.0 s
1932	J. Zabala ARG	2 hr 31 min 36.0 s
1936	K. Son JPN	2 hr 29 min 19.2 s
1948	D. Cabrera ARG	2 hr 34 min 41.6 s
1952	E. Zatopek TCH	2 hr 23 min 03.2 s
1956	*A. Mimoun FRA*	*2 hr 25 min 00.0 s*
1960	A. Bikila ETH	2 hr 15 min 16.2 s
1964	A. Bikila ETH	2 hr 12 min 11.2 s
1968	M. Wolde ETH	2 hr 20 min 26.4 s
1972	F. Shorter USA	2 hr 12 min 19.8 s
1976	W. Cierpinski GDR	2 hr 09 min 55.0 s
1980	W. Cierpinski GDR	2 hr 11 min 03.0 s
1984	C. Lopes POR	2 hr 09 min 21.0 s

110 Metres Hurdles

In 1896 the distance was 100 m (109 yd 1 ft)

1896	T. Curtis USA	17.6 s
1900	A. Kraenzlein	15.4 s
1904	F. Schule	15.6 s
1908	F. Smithson	15.0 s

1912 F. Kelly USA 15.1 s
1920 E. Thomson CAN 14.8 s
1924 D. Kinsey USA 15.0 s
1928 S. Atkinson SAF 14.8 s
1932 G. Saling USA 14.6 s
1936 F. Towns USA 14.2 s
1948 W. Porter USA 13.9 s
1952 W.H. Dillard USA 13.7 s
1956 L. Calhoun USA 13.5 s
1960 L. Calhoun USA 13.8 s
1964 H. Jones USA 13.6 s
1968 W. Davenport USA 13.3 s
1972 R. Milburn USA 13.24 s
1976 G. Drut FRA 13.30 s
1980 T. Munkelt GDR 13.39 s
1984 R. Kingdom USA 13.20 s

400 Metres hurdles

Not held before 1900
1900 J.W. Tewksbury USA 57.6 s
1904 H. Hillman USA 53.0 s
1908 C. Bacon USA 55.0 s
1912 Not held
1920 F. Loomis USA 54.0 s
1924 F.M. Taylor USA 52.6 s
1928 Lord Burghley GBR 53.4 s
1932 R. Tisdall IRL 51.7 s
1936 G. Hardin USA 52.4 s
1948 R. Cochran USA 51.1 s
1952 C. Moore USA 50.8 s
1956 G. Davis USA 50.1 s
1960 G. Davis USA 49.3 s
1964 R.W. Cawley USA 49.6 s
1968 D. Hemery GBR 48.1 s
1972 J. Akii-Bua UGA 47.82 s
1976 E. Moses USA 47.64 s
1980 V. Beck GDR 48.70 s
1984 E. Moses USA 47.75 s

3,000 Metres Steeplechase

Not held before 1900. In 1900 and 1904 the distance was 2,500 m, in 1908 it was 3,200 m. In 1932 the distance in the final was 3,460 m due to an error on the part of an official.

G Orton CAN 7 min 34.4 s
1 J Lightbody USA 7 min 39.6 s
A. Russell GBR 10 min 47.8 s
2 Not held
20 P. Hodge GBR 10 min 00.4 s
1924 V. Ritola FIN 9 min 33.6 s
1928 T. Loukola FIN 9 min 21.8 s
1932 V. Iso-Hollo FIN 10 min 33.4 s
1936 V. Iso-Hollo FIN 9 min 03.8 s
1948 T. Sjostrand SWE 9 min 04.6 s
1952 H. Ashenfelter USA 8 min 45.4 s
1956 C. Brasher GBR 8 min 41.2 s
1960 Z. Krzyszkowiak POL 8 min 34.2 s
1964 G. Roelants BEL 8 min 30.8 s
1968 A. Biwott KEN 8 min 51.0 s
1972 K. Keino KEN 8 min 23.6 s
1976 A. Garderud SWE 8 min 08.02 s
1980 B. Malinowski POL 8 min 09.7 s
1984 J. Korir KEN 8 min 11.80 sc

4×100 Metres Relay

Not held before 1912
1912 GBR 42.4 s
1920 USA 42.2 s
1924 USA 41.0 s
1928 USA 41.0 s
1932 USA 40.0 s
1936 USA 39.8 s
1948 USA 40.6 s
1952 USA 40.1 s
1956 USA 39.5 s
1960 GER 39.5 s
1964 USA 39.0 s
1968 USA 38.2 s
1972 USA 38.19 s
1976 USA 38.33 s
1980 URS 38.26 s
1984 USA 37.83 s

4×400 Metres Relay

Not held before 1912.
1912 USA 3 min 16.6 s
1920 GBR 3 min 22.2 s
1924 USA 3 min 16.0 s
1928 USA 3 min 14.2 s
1932 USA 3 min 08.2 s
1936 GBR 3 min 09.0 s
1948 USA 3 min 10.4 s
1952 JAM 3 min 03.9 s
1956 USA 3 min 04.8 s
1960 USA 3 min 02.2 s
1964 USA 3 min 00.7 s
1968 USA 2 min 56.1 s
1972 KEN 2 min 59.8 s
1976 USA 2 min 58.65 s
1980 URS 3 min 01.1 s
1984 USA 2 min 57.91 s

20 Kilometres Walk

Not held before 1956
1956 L. Spirin URS 1 hr 31 min 27.4 s
1960 V. Golubnichi URS 1 hr 34 min 07.2 s
1964 K. Matthews GBR 1 hr 29 min 34.0 s
1968 V. Golubnichi URS 1 hr 33 min 58.4 s
1972 P. Frenkel GDR 1 hr 26 min 42.4 s
1976 D. Bautista MEX 1 hr 24 min 40.6 s
1980 M. Damilano ITA 1 hr 23 min 35.5 s
1984 E. Canto MEX 1 hr 23 min 13.0 s

50 Kilometres Walk

Not held before 1932.
1932 T. Green GBR 4 hr 50 min 10.0 s
1936 H. Whitlock GBR 4hr 30min 41.1s
1948 J. Ljunggren SWE 4 hr 41 min 52.0 s
1952 G. Dordoni ITA 4 hr 28 min 07.8 s
1956 N. Read NZL 4 hr 30 min 42.8 s
1960 D. Thompson GBR 4 hr 25 min 30.0 s
1964 A. Pamich ITA 4 hr 11 min 12.4 s
1968 C. Hohne GDR 4 hr 20 min 13.6 s
1972 B. Kannenberg GER 3 hr 56 min 11.6 s
1976 Not held
1980 H. Gauder GDR 3hr 49min 24.0 s
1984 R. Gonzalez MEX 3hr 47min 26.0s

High Jump

1896 E. Clark USA 1.81 m
1900 I. Baxter USA 1.90 m
1904 S. Jones USA 1.80 m
1908 H. Porter USA 1.90 m
1912 A. Richards USA 1.93 m
1920 R. Landon USA 1.94 m
1924 H. Osborn USA 1.98 m
1928 R. King USA 1.94 m
1932 D. McNaughton CAN 1.97 m
1936 C. Johnson USA 2.03 m
1948 J. Winter AUS 1.98 m
1952 W. Davis USA 2.04 m
1956 C. Dumas USA 2.12 m
1960 R. Shavlakadze URS 2.16 m
1964 V. Brumel URS 2.18 m
1968 R. Fosbury USA 2.24 m
1972 Y. Tarmak URS 2.23 m
1976 J. Wszola POL 2.25 m
1980 G. Wessig GDR 2.36 m
1984 D. Moegenburg GER 2.35 m

Long Jump

1896 E. Clark USA 6.35 m
1900 A. Kraenzlein USA 7.185 m
1904 M. Prinstein USA 7.34 m
1908 F. Irons USA 7.48 m
1912 A. Gutterson USA 7.60 m
1920 W. Pettersson SWE 7.15 m
1924 W.D.H. Hubbard USA 7.44 m
1928 E. Hamm USA 7.73 m
1932 E. Gordon USA 7.64 m
1936 J. Owens USA 8.06 m
1948 W. Steele USA 7.82 m
1952 J. Biffle USA 7.57 m
1956 G. Bell USA 7.83 m
1960 R. Boston USA 8.12 m
1964 L. Davies GBR 8.07 m
1968 R. Beamon USA 8.90 m
1972 R. Williams USA 8.24 m
1976 A. Robinson USA 8.35 m
1980 L. Dombrowski GDR 8.54 m
1984 C. Lewis USA 8.54 m

Triple Jump

1896 J. Connolly USA 13.71 m
1900 M. Prinstein USA 14.47 m
1904 M. Prinstein USA 14.35 m
1908 T. Ahearne GBR/IRL 14.91 m
1912 G. Lindblom SWE 14.76 m
1920 V. Tuulos FIN 14.50 m
1924 A. Winter AUS 15.52 m
1928 M. Oda JPN 15.21 m
1932 C. Nambu JPN 15.72 m
1936 N. Tajima JPN 16.00 m
1948 A. Ahman SWE 15.40 m
1952 A.F. da Silva BRA 16.22 m
1956 A.F. da Silva BRA 16.35 m
1960 J. Szmidt POL 16.81 m
1964 J. Szmidt POL 16.85 m
1968 V. Saneev URS 17.39 m
1972 V. Saneev URS 17.35 m
1976 V. Saneev URS 17.29 m
1980 J. Uudmae URS 17.35 m
1984 A. Joyner USA 17.26 m

Pole Vault

1896 W. Hoyt USA 3.30 m
1900 I. Baxter USA 3.30 m
1904 C. Dvorak USA 3.50 m
1908 A. Gilbert USA & E. Cooke USA 3.71 m
1912 H. Babcock USA 3.95 m
1920 F. Foss USA 4.09 m
1924 L. Barnes USA 3.95 m
1928 S. Carr USA 4.20 m

1932 W. Miller USA 4.32 m
1936 E. Meadows USA 4.35 m
1948 O.G Smith USA 4.30 m
1952 R. Richards USA 4.55 m
1956 R.Richards USA 4.56 m
1960 D. Bragg USA 4.70 m
1964 F. Hansen USA 5.10 m
1968 R. Seagren USA 5.40 m
1972 W. Nordwig GDR 5.50 m
1976 T. Slusarski POL 5.50 m
1980 W. Kozakiewicz POL 5.78 m
1984 P. Quinon FRA 5.75 m

Shot Put

Weight 7.257 kg (16 lb) from a circle of 2.135 m (7 ft); in 1896 and 1900 a square of 2.135 m (7 ft)

1896 R. Garrett USA 11.22 m
1900 R. Sheldon USA 14.10 m
1904 R. Rose USA 14.81 m
1908 R. Rose USA 14.21 m
1912 P. McDonald USA 15.34 m
1920 V. Porhola FIN 14.81 m
1924 C. Houser USA 14.99 m
1928 J. Kuck USA 15.87 m
1932 L. Sexton USA 16.01 m
1936 H. Wollke GER 16.20 m
1948 W. Thompson USA 17.12 m
1952 P. O'Brien USA 17.41 m
1956 P. O'Brien USA 18.57 m
1960 W. Nieder USA 19.68 m
1964 D. Long USA 20.33 m
1968 R. Matson USA 20.54 m
1972 W. Komar POL 21.18 m
1976 U. Beyer GDR 21.05 m
1980 V. Kiselyou URS 21.35 m
1984 A. Andrei ITA 21.26 m

Discus

Weight 2 kg (4 lb 6.547 oz) from a circle of 2.50 m.

1896 R. Garrett USA 29.15 m
1900 R. Bauer HUN 36.04 m
1904 M. Sheridan USA 39.28 m
1908 M. Sheridan USA 40.89 m
1912 A. Taipale FIN 45.21 m
1920 E. Niklander FIN 44.69 m
1924 C. Houser USA 46.16 m
1928 C. Houser USA 47.32 m
1932 J. Anderson USA 49.49 m
1936 K. Carpenter USA 50.48 m
1948 A. Consolini ITA 52.78 m
1952 S. Iness USA 55.03 m
1956 A. Oerter USA 56.36 m
1960 A. Oerter USA 59.18 m
1964 A. Oerter USA 61.00 m
1968 A. Oerter USA 64.78 m
1972 L. Danek TCH 64.40 m
1976 M. Wilkins USA 67.50 m
1980 V. Rasshchupkin URS 66.64 m
1984 R. Danneberg GER 66.60 m

Hammer Throw

Weight 7.257 (16 lb) from a circle of 2.135 m (7 ft). In 1900 from a 9 ft circle. Not held before 1900.

1900 J. Flanagan USA 49.73 m
1904 J. Flanagan USA 51.23 m
1908 J. Flanagan USA 51.92 m
1912 M. McGrath USA 54.74 m
1920 P. Ryan USA 52.88 m
1924 F. Tootell USA 53.30 m
1928 P. O'Callaghan IRL 51.39 m
1932 P. O'Callaghan IRL 53.92 m
1936 K. Hein GER 56.49 m
1948 I. Nemeth HUN 56.07 m
1952 J. Csermak HUN 60.34 m
1956 H. Connolly USA 63.19 m
1960 V. Rudenkov URS 67.10 m
1964 R. Klim URS 69.74 m
1968 G. Zsivotzky HUN 73.36 m
1972 A. Bondarchuk URS 75.50 m
1976 Y. Sedykh URS 77.50 m
1980 Y. Sedykh URS 81.80 m
1984 J. Tiainen FIN 78.08 m

Javelin

Not held before 1908

1908 E. Lemming SWE 54.83 m
1912 E. Lemming SWE 60.64 m
1920 J. Myyra FIN 65.78 m
1924 J. Myyra FIN 62.96 m
1928 E. Lundkvist SWE 66.60 m
1932 M. Jarvinen FIN 72.71 m
1936 G. Stock GER 71.84 m
1948 T. Rautavaara FIN 69.77 m
1952 C. Young USA 73.78 m
1956 E. Danielsen NOR 85.71 m
1960 V. Tsibulenko URS 84.64 m
1964 P. Nevala FIN 82.66 m
1968 Y. Lusis URS 90.10 m
1972 K. Wolfermann GER 90.48 m
1976 M. Nemeth HUN 94.58 m
1980 D. Kula URS 91.20 m
1984 A. Haerkoenen FIN 86.76 m

Decathlon

Consists of ten events on two consecutive days, 100 metres, long jump, shot put, high jump, 400 metres on the first day; 110-metres hurdles, discus, pole vault, javelin, 1,500 metres on the second day. Not held in its present from before 1912

1912 H. Wieslander SWE 7,724.495 pts
1920 H. Lovland NOR 6,803.355 pts
1924 H. Osborn USA 7,710.775 pts
1928 P. Yrjola FIN 8,053.290 pts
1932 J. Bausch USA 8,462.230 pts
1936 G. Morris USA 7,900 pts
1948 R. Mathias USA 7,139 pts
1952 R. Mathias USA 7,887 pts
1956 M. Campbell USA 7,937 pts
1960 R. Johnson USA 8,392 pts
1964 W. Holdorf GER 7,887 pts
1968 B. Toomey USA 8,193 pts
1972 N. Avilov URS 8,454 pts
1976 B. Jenner USA 8,618 pts
1980 D. Thompson GBR 8,495 pts
1984 D. Thompson GBR 8,797 pts

ATHLETICS (WOMEN)

100 Metres

Not held before 1928

1928 E. Robinson USA 12.2 s
1932 S. Walasiewicz USA 11.9 s
1936 H. Stephens USA 11.5 s
1948 F. Blankers-Koen HOL 11.9 s
1952 M. Jackson AUS 11.5 s
1956 B. Cuthbert AUS 11.5 s
1960 W. Rudolph USA 11.0 s
1964 W. Tyus USA 11.4 s
1968 W. Tyus USA 11.0 s
1972 R. Stecher GDR 11.07 s
1976 A. Richter GDR 11.08 s
1980 L. Kondratyeva URS 11.06 s
1984 E. Ashford USA 10.97 s

200 Metres

Not held before 1948.

1948 F. Blankers-Koen HOL 24.4 s
1952 M. Jackson AUS 23.7 s
1956 B. Cuthbert AUS 23.4 s
1960 W. Rudolph USA 24.0 s
1964 E. Maguire USA 23.0 s
1968 I. Szewinska-Kirszenstein POL 22.5 s
1972 R. Stecher GDR 22.40 s
1976 B. Eckert GDR 22.37 s
1980 B. Wockel GDR 22.03 s
1984 V. Brisco-Hooks USA 21.81 s

400 Metres

Not held before 1964

1964 B. Cuthbert AUS 52.0 s
1968 C. Besson FRA 52.0 s
1972 M. Zehrt GDR 51.08 s
1976 I. Szewinska-Kirszenstein POL 49.29 s
1980 M. Koch GDR 48.88 s
1984 V. Brisco-Hooks USA 48.83 s

800 Metres

Not held before 1928

1928 L. Radke GER 2 min 16.8 s
1932–1956 Not held
1960 L. Shevtsova URS 2 min 04.3 s
1964 A. Packer GBR 2 min 01.1 s
1968 M. Manning USA 2 min 00.9 s
1972 H. Falck GER 1 min 58.6 s
1976 T. Kazankina URS 1 min 54.94 s
1980 N. Olizarenko URS 1 min 53.5 s
1984 D. Melinte ROM 1 min 57.60 s

1,500 Metres

Not held before 1972

1972 L. Bragina URS 4 min 01.4 s
1976 T. Kazankina URS 4 min 05.48 s
1980 T. Kazankina URS 3 min 56.6 s
1984 G. Dorio ITA 4 min 03.25 s

3,000 Metres

Not held before 1984

1984 M. Puica ROM 8 min 35.96 s

Marathon

Not held before 1984.

1984 J. Benoit USA 2 hr 24 min 52 s

80 Metres Hurdles

Not held before 1932

1932 M. Didrikson USA 11.7 s
1936 T. Valla ITA 11.7 s
1948 F. Blankers-Koen HOL 11.2 s
1952 S. (Strickland) de la Hunty AUS 10.9 s
1956 S. (Strickland) de la Hunty AUS 10.7 s
1960 I. Press URS 10.8 s
1964 K. Balzer GER 10.5 s
1968 M. Caird AUS 10.3 s

In 1972 this event was changed to 100 Metres Hurdles

100 Metres Hurdles

Not held before 1972

1972 A. Ehrhardt GDR	12.59 s
1976 J. Schaller GDR	12.77 s
1980 V. Komisova URS	12.56 s
1984 B Fitzgerald-Brown USA	12.84 s

400 Metres Hurdles

Not held before 1984.

1984 N. El Moutawakel MAR	54 61 s

4×100 Metres Relay

Not held before 1928.

1928 CAN	48 4 s
1932 USA	47.0 s
1936 USA	46 9 s
1948 HOL	47.5 s
1952 USA	45 9 s
1956 AUS	44 5 s
1960 USA	44.5 s
1964 POL	43 6 s
1968 USA	42.8 s
1972 GER	42 81 s
1976 GDR	42.55 s
1980 GDR	41.60 s
1984 USA	41 65 s

4×400 Metres Relay

Not held before 1972.

1972 GDR	3 min 23 0 s
1976 GDR	3 min 19.23 s
1980 URS	3 min 20.2 s
1984 USA	3 min 18.29 s

Pentathlon

Consists of five events on two consecutive days; 80-metres hurdles (100-metres hurdles after 1968), shot put, high jump on the first day; long jump and 200 metres on the second. Not held before 1964.

1964 I Press URS	5,246 pts
1968 I. Becker GER	5,098 pts
1972 M Peters GBR	4,801 pts
1976 S. Siegl GDR	4,745 pts
1980 N Tkachenko URS	5,083 pts

1984 this event was changed to

Consists of seven events on two consecutive days; 100-metres hurdles, high jump, shot put, 200 metres on the first day; long jump, Javelin and 800 metres on the second. Not held before 1984.

1984 G Nunn AUS	6,390 pts

High Jump

Not held before 1928.

1928 E. Catherwood CAN	1.59 m
1932 J. Shiley USA	1 65 m
1936 I Csak HUN	1.60 m
1948 A. Coachman USA	1 68 m
1952 E. Brand SAF	1 67 m
1956 M. McDaniel USA	1.76 m
1960 I. Balas ROM	1.85 m
1964 I. Balas ROM	1.90 m
1968 M. Rezkova TCH	1.82 m
1972 U. Ackerman GDR	1.93 m
1980 S. Simeoni ITA	1 97 m
1984 U. Meyfarth GER	2 02 m

Long Jump

Not held before 1948

1948 O. Gyarmati HUN	5.70 m
1952 Y. Williams NZL	6 24 m
1956 E. Krzesinska POL	6.35 m
1960 V. Krepkina URS	6 37 m
1964 M. Rand GBR	6 76 m
1968 V. Viscopoleanu ROM	6 82 m
1972 H. Rosendahl GER	6.78 m
1976 A. Voigt GDR	6.72 m
1980 T. Kolpakova URS	7.06 m
1984 A. Stanciu ROM	6 96 m

Shot Put

Weight 4 kg (8 lb 13 oz) from a circle of 2.135 m (7 ft) Not held before 1948

1948 M. Ostermeyer FRA	13.75 m
1952 G Zybina URS	15.28 m
1956 T. Tyshkevich URS	16 59 m
1960 T. Press URS	17.32 m
1964 T. Press URS	18 14 m
1968 M. Gummel GDR	19.61 m
1972 N. Chizhova URS	21 03 m
1976 I Christova BUL	21.16 m
1980 I. Slupiauek GDR	22.41 m
1984 C. Losch GER	20 48 m

Discus

Weight 1 kg (2 lb 3 274 oz) from a circle of 2.50 m (8 ft 2½ in). Not held before 1928

1928 H. Konopacka POL	39 62 m
1932 L. Copeland USA	40 58 m
1936 G Mauermayer GER	47.63 m
1948 M. Ostermeyer FRA	41.92 m
1952 N. Romashkova URS	51.42 m
1956 O Fikotova TCH	53 69 m
1960 N (Romashkova) Ponomareva URS	55.10 m
1964 T. Press URS	57.27 m
1968 L. Manoliu ROM	58 28 m
1972 F. Melnik URS	66 62 m
1976 E. Schlzak GDR	60 00 m
1980 E. Jahl GDR	69.96 m
1984 R. Stalman HOL	65 36 m

Javelin

Not held before 1932.

1932 M. Didrikson USA	43 68 m
1936 T. Fleischer GER	45.18 m
1948 H. Bauma AUT	45.57 m
1952 D. Zatopkova TCH	50 47 m
1956 I Yaunzeme URS	53 86 m
1960 E. Ozolina URS	55 98 m
1964 M. Penes ROM	60 54 m
1968 A. Nemeth HUN	60.36 m
1972 R. Fuchs GDR	63.88 m
1976 R. Fuchs GDR	65.94 m
1980 M Colon CUB	68 40 m
1984 T. Sanderson GBR	69 56 m

BASKETBALL (MEN)

Not held as a competition before 1936

1936 USA	
1948 USA	
1952 USA	
1956 USA	
1960 USA	
1964 USA	
1968 USA	
1972 URS	
1976 USA	
1980 YUG	
1984 USA	

BASKETBALL (WOMEN)

Not held as a competition before 197

1976 URS	
1980 URS	
1984 USA	

BOXING

Light Flyweight

Not held before 1968. Weight limit 48 l (105 lb 13 oz)

1968 F. Rodriguez VEN	
1972 G. Gedo HUN	
1976 J. Hernandez CUB	
1980 S Sabyrov URS	
1984 P. Gonzales USA	

Flyweight

Not held before 1904. In 1904 weig limit 47 6 kg (105 lb); 1920–36 50 8 (112 lb), from 1948 51 kg (112 lb 6 o

1904 G. Finnegan USA	
1908–1912 Not held	
1920 F. De Genaro USA	
1924 F. LaBarba USA	
1928 A. Koesis HUN	
1932 I. Enekes HUN	
1936 W. Kaiser GER	
1948 P. Perez ARG	
1952 N. Brooks USA	
1956 T. Spinks GBR	
1960 G Torok HUN	
1964 F. Azzori ITA	
1968 R. Delgado MEX	
1972 G. Kostadinov BUL	
1976 L. Randolph USA	
1980 P. Lessov BUL	
1984 S McCrory USA	

Bantamweight

Not held before 1904 In 1904 we limit 52.1 kg (115 lb), 1908 52 6 kg (lb); 1920 53 6 kg (118 lb 2 oz), 1924 53.5 kg (118 lb), from 1948 54 kg (lb).

1904 O.L. Kirk USA	
1908 H. Thomas GBR	
1912 Not held	
1920 C. Walker SAF	
1924 W. Smith SAF	
1928 V. Tamagnini ITA	
1932 H. Gwynne CAN	
1936 U Sergo ITA	
1948 T. Casik HUN	
1952 P. Hamalainen FIN	
1956 W. Behrendt GER	
1960 O Grigoriev URS	
1964 T. Sakurai JPN	
1968 V. Sokolov URS	
1972 O. Martinez CUB	
1976 Y.J. Gu PRK	
1980 J. Hernandez CUB	
1984 M. Stecca ITA	

Featherweight

Not held before 1904 In 1904 w limit 56.7 kg (125 lb), 1908–36 57. (126 lb), 1948 58 kg (127 lb 14 oz)

1952 57 kg (125 lb 10½ oz).
1904 O.L.Kirk USA
1908 R. Gunn GBR
1912 Not held
1920 P. Fritsch FRA
1924 J. Fields USA
1928 L. van Klaveren HOL
1932 C. Robledo ARG
1936 O. Casanovas ARG
1948 E. Formenti ITA
1952 J. Zachara TCH
1956 V. Safronov URS
1960 F. Musso ITA
1964 S. Stepashkin URS
1968 A Roldan MEX
1972 B. Kusnetsov URS
1976 A. Herrera CUB
1980 R. Fink GDR
1984 M. Taylor USA

Lightweight

Not held before 1904. In 1904 weight limit 61.2 kg (135 lb); 1908 63 5 kg (140 lb); 1920–36 61.24 kg (135 lb); 1948 62 kg (136 lb 11 oz); from 1952 60 kg (132 lb 4½ oz).
1904 H. Spanger USA
1908 F. Grace GBR
1912 Not held
1920 S. Mosberg USA
1924 H. Nielsen DEN
1928 C. Orlandi ITA
1932 L. Stevens SAF
1936 I. Harangi HUN
1948 G. Dreyer SAF
1952 A. Bolognesi ITA
1956 R. Mc Taggart GBR
1960 K. Pazdzior POL
1964 J. Grudzien POL
1968 R. Harris USA
1972 J. Szczepanski POL
1976 H. Davis USA
1980 A. Herrera CUB
1984 P. Whitaker USA

Light Welterweight

Not held before 1952. Weight limit 63 5 kg (140 lb)
1952 C. Adkins USA
1956 V. Yengibaryan URS
1960 B. Nemecek TCH
1964 J. Kulej POL
1968 J. Kulej POL
1972 R. Seales USA
1976 R. Leonard USA
1980 P. Oliva ITA
1984 J. Page USA

Welterweight

Not held before 1904. In 1904 weight limit 65.27 kg (144 lb), 1920–36 66 68 kg (147 lb), from 1968 67 kg (147 lb 11⅓ oz) In 1924 this weight category was called Light Middleweight.
1904 A. Young USA
1908–1912 Not held
1920 J. Schneider CAN
1924 J. Delarge BEL
1928 E. Morgan NZL
1932 E. Flynn USA
1936 S. Suvio FIN
1948 J. Torma TCH
1952 Z. Chychla POL
1956 N. Linca ROM
1960 G. Benvenuti ITA
1964 M. Kasprzyk POL
1968 M. Wolke GDR
1972 E. Correa CUB
1976 J. Bachfield GDR
1980 A. Aldama CUB
1984 M. Breland USA

Light Middleweight

Not held before 1952. Weight limit 71 kg (156 lb 8½ oz).
1952 L. Papp HUN
1956 L. Papp HUN
1960 W. McClure USA
1964 B. Lagutin URS
1968 B. Lagutin URS
1972 D. Kottysch GER
1976 J. Rybicki POL
1980 A. Martinez CUB
1984 F. Tate USA

Middleweight

Not held before 1904 In 1904–8 weight limit 71.67 kg (158 lb); 1920–36 72 57 kg (160 lb), 1948 73 kg (169 lb 15 oz), from 1952 75 kg (165 lb 5¾ oz).
1904 C. Mayer USA
1908 J. Douglas GBR
1912 Not held
1920 H. Mallin GBR
1924 H. Mallin GBR
1928 P. Toscani ITA
1932 C. Barth USA
1936 J. Despeaux FRA
1948 L. Papp HUN
1952 F. Patterson USA
1956 G. Shatkov URS
1960 E. Crook USA
1964 V. Popenchenko URS
1968 C. Finnegan GBR
1972 V. Lemechev URS
1976 M. Spinks USA
1980 J. Gomez CUB
1984 Joon-Sup Shin KOR

Light Heavyweight

Not held before 1920 Weight limit 1920-36 79.38 kg (175 lb); 1948 80 kg (176 lb 6 oz), from 1952 81 kg (178 lb 9 oz).
1920 E. Eagan USA
1924 H. Mitchell GBR
1928 V. Avendano ARG
1932 D. Carstens SAF
1936 R. Michelot FRA
1948 G. Hunter SAF
1952 N. Lee USA
1956 J.F. Boyd USA
1960 C. Clay USA
1964 C. Pinto ITA
1968 D. Poznyak URS
1972 M. Parlov YUG
1976 L. Spinks USA
1980 S. Kacar YUG
1984 A. Josipovic YUG

Heavyweight

Not held before 1904 In 1904–8 weight limit over 71.67 kg (158 lb); 1920–36 79.38 kg (175 lb); 1948 80 kg (176 lb 6 oz); from 1952 81 kg (178 lb 9 oz); from 1984 91 kg (200½ lb)
1904 S. Berger USA
1908 A.L. Oldham GBR
1912 Not held
1920 R. Rawson GBR
1924 O. von Porat NOR
1928 A.R. Jurado ARG
1932 S. Lovell ARG
1936 H. Runge GER
1948 R. Iglesias ARG
1952 H.E. Sanders USA
1956 T.P. Rademacher USA
1960 F. de Piccoli ITA
1964 J. Frazier USA
1968 G. Foreman USA
1972 T. Stevenson CUB
1976 T. Stevenson CUB
1980 T. Stevenson CUB
1984 H. Tillman USA

Super Heavyweight

Not held before 1984. Weight over 91 kg (202½ lb);
1984 T. Biggs USA

CANOEING (MEN)

Canadian Singles

Course 500 m (546 yd) Not held before 1976

1976 A. Rogov URS	1 min 59 23 s
1980 S. Postrekhin URS	1 min 53 37 s
1984 L. Cain CAN	1 min 57 01 s

Course 1,000 m (1,094 yd) Not held before 1936

1936 F. Amyot CAN	5 min 32 1 s
1948 J. Holecek TCH	5 min 42 0 s
1952 J. Holecek TCH	4 min 56.3 s
1956 L. Rotman ROM	5 min 05 3 s
1960 J. Parti HUN	4 min 33 93 s
1964 J. Eschert GER	4 min 35 14 s
1968 T. Tatai HUN	4 min 36 14 s
1972 I. Patzaichin ROM	4 min 08 94 s
1976 M. Ljubek YUG	4 min 09 51 s
1980 L. Lubenov BUL	4 min 12.38 s
1984 U. Eicke GER	4 min 06.32 s

Canadian Pairs

Course 500 m (546 yd) Not held before 1976.

1976 URS	1 min 45 81 s
1980 HUN	1 min 43 39 s
1984 YUG	1 min 43 67 s

Course 1,000 m (1,094 yd) Not held before 1936

1936 TCH	4 min 50 1 s
1948 TCH	5 min 07 1 s
1952 DEN	4 min 38.5 s
1956 ROM	4 min 47 4 s
1960 URS	4 min 17 91 s
1964 URS	4 min 01 63 s
1968 ROM	4 min 07 18 s
1972 URS	3 min 52 76 s
1976 URS	3 min 52 76 s
1980 ROM	3 min 47 65 s
1984 ROM	3 min 49 60 s

Kayak Singles

Course 500 m (54[illegible] Not held before 1976

1976 V. Diba ROM 1 min 46.1 s
1980 V. Parfenovich URS 1 min 43.43 s
1984 I Ferguson NZL 1 min 47.84 s

Course 1,000 m (1,094 yd).
Not held before 1936.

1936 G. Hradetzky AUT 4 min 22.9 s
1948 G. Fredriksson SWE 4 min 33.2 s
1952 G. Fredriksson SWE 4 min 07.9 s
1956 G. Fedriksson SWE 4 min 12.8 s
1960 E. Hansen DEN 3 min 53.0 s
1964 R. PetersonSWE 3 min 57.13 s
1968 M. Hesz HUN 4 min 02.63 s
1972 A. Shaparenko URS 3 min 48.06 s
1976 R. Helm GDR 3 min 48.20 s
1980 R. Helm GDR 3 min 48.77 s
1984 A. Thompson NZL 3 min 45.73 s

Kayak Pairs

Course 500 m (546 yd). Not held before 1976.

1976 GDR 1 min 35.87 s
1980 URS 1 min 32.38 s
1984 NZL 1 min 34.21 s

Course 1,000 m (1,094 yd).
Not held before 1936.

1936 AUT 4 min 03.8 s
1948 SWE 4 min 07.3 s
1952 FIN 3 min 51.1 s
1956 GER 3 min 49.6 s
1960 SWE 3 min 34.73 s
1964 SWE 3 min 38.54 s
1968 URS 3 min 37.54 s
1972 URS 3 min 31.23 s
1976 URS 3 min 29.01 s
1980 URS 3 min 26.72 s
1984 CAN 3 min 24.22 s

Kayak Fours

Course 1,000 m (1,094 yd) Not held before 1964.

1964 URS 3 min 14.67 s
1968 NOR 3 min 14.38 s
1972 URS 3 min 14.02 s
1976 URS 3 min 08.69 s
1980 GDR 3 min 13.76 s
1984 NZL 3 min 02.28 s

Singles

held before 1972.
1972 R. Eiben GDR 315.84 pts
1976 Not held

Course 500 m (546 yd)
Not held before 1976.

1976 A. Rogov URS 1 min 59.23 s
1980 S. Prostrekhin URS 1 min 53.37 s
1984 Not held

Slalom—Canadian Pairs

Not held before 1972.

1972 GDR 310.68 pts
1976 Not held

Course 500 m (546 yd)
Not held before 1976.

1976 URS 1 min 45.81 s
1980 HUN 1 min 43.39 s
1984 Not held

Slalom—Kayak Singles

Not held before 1972.

1972 S. Horn GDR 268.56 pts
1976—1984 Not held

CANOEING (WOMEN)

Kayak Singles

Course 500 m (547 yd) Not held before 1948.

1948 K. Hoff DEN 2 min 31.9 s
1952 S. Salmo FIN 2 min 18.4 s
1956 E. Dementieva URS 2 min 18.9 s
1960 A. Seredina URS 2 min 08.08 s
1964 L. Khvedosyuk URS 2 min 12.87 s
1968 L. Pinaeva URS 2 min 11.09 s
1972 Y. Byabchinskaya URS 2 min 03.17 s
1976 C. Zirzow GDR 2 min 01.05 s
1980 B. Fischer GDR 1 min 57.96 s
1984 A. Andersson SWE 1 min 58.72 s

Kayak Pairs

Course 500 m (546 yd).
Not held before 1960

1960 URS 1 min 54.76 s
1964 GER 1 min 56.95 s
1968 GER 1 min 56.41 s
1972 URS 1 min 53.50 s
1976 URS 1 min 51.15 s
1980 GDR 1 min 43.88 s
1984 SWE 1 min 45.25 s

Kayak Fours

Course 500 m Not held before 1984
1984 ROM 1 min 38.31 s

Slalom — Kayak Singles

Not held before 1972
1972 A. Bahmann GDR 364.50 pts
1976—1984 Not held

CYCLING (MEN)

1,000 Metres Sprint

In 1896—1900 the distance was 2,000 m. From 1924 only times over the last 200 m have been recorded.

1896 P. Masson FRA 4 min 56.0 s
1900 G. Taillandier FRA 2 min 52.0 s
1904 Not held
1908 Final declared void because time limit was exceeded.
1912 Not held
1920 M. Peeters HOL 1 min 38.3 s
1924 L. Michard FRA 12.8 s
1928 R. Beaufrand FRA 13.2 s
1932 J. van Egmond HOL 12.6 s
1936 T. Merkens GER 11.8 s
1948 M. Ghella ITA 12.0 s
1952 E. Sacchi ITA 12.0 s
1956 M. Rousseau FRA 11.4 s
1960 S. Gaiardoni ITA 11.1 s
1964 G. Pettenella ITA 13.69 s
1968 D. Morelon FRA 10.68 s
1972 D. Morelon FRA 11.69 s
1976 A. Tkak TCH nda
1980 L. Hesslich GDR nda
1984 M. Gorski USA nda

1,000 Metres Time Trial

Not held before 1928.

1928 W. Falck-Hansen DEN 1 min 14.4 s
1932 E. Gray AUS 1 min 13.0 s
1936 A. van Vliet HOL 1 min 12.0 s
1948 J. Dupont FRA 1 min 13.5 s
1952 R. Mockridge AUS 1 min 1
1956 L. Faggin ITA 1 min 0
1960 S. Gaiardoni ITA 1 min 07
1964 P. Sercu BEL 1 min 09
1968 P. Trentin FRA 1 min 03
1972 N C. Fredborg DEN 1 min 06
1976 KJ. Grunke GDR 1 min 05.9
1980 L. Thoms GDR 1 min 02.5
1984 F. Schmidtke GER 1 min 06

4,000 Metres Pursuit (Individual)

Not held before 1964.

1964 J. Daler TCH 5 min 04
1968 D. Rebillard FRA 4 min 41
1972 K. Knudsen NOR 4 min 45
1976 G. Braun GER 4 min 47
1980 R. Dill-Bundi SUI 4 min 35
1984 S. Hegg USA 4 min 39

Individual Points Race

Not held before 1984
1984 R. Illegems BEL

4,000 Metres Pursuit (Team)

1920 ITA 5 min 2
1924 ITA 5 min 1
1928 ITA 5 min 0
1932 ITA 4 min 5
1936 FRA 4 min 4
1948 FRA 4 min 5
1952 ITA 4 min 4
1956 ITA 4 min 3
1960 ITA 4 min 30
1964 GER 4 min 35
1968 DEN 4 min 22
1972 GER 4 min 22
1976 GER 4 min 21
1980 URS 4 min 1
1984 AUS 4 min 2

2,000 Metres Tandem

Not held before 1908. From 1928 times over the last 200 m have recorded.

1908 FRA 3 min
1912 Not held
1920 GBR 2 min
1924 FRA 2 min
1928 HOL
1932 FRA
1936 GER
1948 ITA
1952 AUS
1956 AUS
1960 ITA
1964 ITA 1
1968 FRA
1972 URS 1
1976—1984 Not held

Road Race (Individual

In 1896 the distance was 87 km miles); in 1912 320 km (199 mile 1920 175 km (109 miles); in 192 km (117 miles); in 1928 169 km miles); in 1932 and 1936 100 kr miles); in 1948 199.6 km (124 n in 1952 190.4 km (118 miles); in 187.7 km (117 miles); in 1960 175

(109 miles); in 1964 194.8 km (121 miles); in 1968 196.2 km (122 miles); in 1972 182.4 km (113 miles).

1896 A. Konstantinidis GRE 3 hr 22 min 31.0 s
1900–1908 Not held
1912 R. Lewis SAF 1 hr 42 min 39.0 s
1920 H. Stenqvist SWE 4 hr 40 min 01.8 s
1924 A. Blanchonnet *FRA 6 hr 20 min 48.0 s*
1928 H. Hansen DEN 4 hr 47 min 18.0 s
1932 A. Pavesi ITA 2 hr 28 min 05.6 s
1936 R. Charpentier FRA 2 hr 33 min 05.0 s
1948 J. Beyaert FRA 5 hr 18 min 12.6 s
1952 A. Noyelle BEL 5 hr 06 min 03.4 s
1956 E. Baldini ITA 5 hr 21 min 17.0 s
1960 V. Kapitonov URS 4 hr 20 min 37.0 s
1964 M. Zanin ITA 4 hr 39 min 51.63 s
1968 P. Vianelli ITA 4 hr 41 min 25.24 s
1972 H. Kuiper HOL 4 hr 14 min 37.0 s
1976 *B. Johansson* SWE 4 hr 46 min 52.0 s
1980 S. Sukhoruchenkov URS 4 hr 48 min 28.9 s
1984 A. Grewal USA 4 hr 59 min 57 s

Road Race (Team)

Although team medals were awarded from 1912, a separate team event was not held until 1960. From 1960 it has been a 100 km. (62 miles) time trial.

1912 SWE 44 hr 35 min 33.6 s
1920 FRA 19 hr 16 min 43.2 s
1924 FRA 19 hr 30 min 14.0 s
1928 DEN 15 hr 09 min 14.0 s
1932 ITA 7 hr 27 min 15.2 s
1936 FRA 7 hr 39 min 16.2 s
1948 BEL 15 hr 58 min 17.4 s
1952 BEL 15 hr 20 min 46.6 s
1956 FRA (22 pts) 16 hr 10 min 36 s
1960 ITA 2 hr 14 min 33.53 s
1964 HOL 2 hr 26 min 31.19 s
1968 HOL 2 hr 07 min 49.06 s
1972 URS 2 hr 11 min 17.8 s
1976 URS 2 hr 08 min 53.0 s
1980 URS 2 hr 01 min 21.7 s
1984 ITA 1 hr 58 min 28 s

CYCLING (WOMEN)

Road Race (Individual)

Not held before 1984; 79.2 km

1984 C. Carpenter Phinney 2 hr 11 min 14 s

EQUESTRIAN SPORTS

Show Jumping (Individual)

Not held before 1900

1900 A. Haegeman (Benton II) BEL 2 min 16.0 s
1904–1908 Not held
1912 J. Cariou (Mignon) FRA 186 pts
1920 T. Lequio (Trebecco) ITA 2 flts
1924 A. Gemuseus (Lucette) SUI 6 flts
1928 F. Ventura (Eliot) TCH 0 flts
1932 T. Nishi (Uranus) JPN 8 flts
1936 K. Hasse (Tora) GER 4 flts
1948 H. Mariles-Cortes (Arete) MEX 6.25 flts
1952 P.J. d'Oriola (Ali Baba) FRA 8 flts
1956 H.G. Winkler (Halla) GER 4 flts
1960 R. d'Inzeo (Posillipo) ITA 12 flts
1964 P.J. d'Oriola (Lutteur) FRA 9 flts
1968 W. Steinkraus (Snowbound) USA 4 flts
1972 G. Mancinelli (Ambassador) *ITA 8 flts*
1976 A. Schockemoehle (Warwick Rex) GER 0 flts
1980 J. Kowalczyk (Artemor) POL 8.00 flts
1984 J. Fargis (Touch of Class) USA 0 flts

Show Jumping (Team) (Nations' Cup)

Not held before 1912

1912 SWE 545 pts
1920 SWE 14 flts
1924 SWE 42.5 flts
1928 ESP 4 flts
1932 Not awarded (no nation completed the course with three riders).
1936 GER 44 flts
1948 MEX 34.25 flts
1952 GBR 40.75 flts
1956 GER 40 flts
1960 GER 46.5 flts
1964 GER 68.50 flts
1968 CAN 102.75 flts
1972 GER 32.00 flts
1976 FRA 40 flts
1980 URS 20.25 flts
1984 USA 12 flts

Dressage (Individual)

Not held before 1912.

1912 C. Bonde (Emperor) SWE 15 flts
1920 J. Lundblad (Uno) SWE 27.937 pts
1924 E. Linder (Piccolomini) SWE 276.4 pts
1928 C.F. Frhr von Langen (Draufganger) GER 237.42 pts
1932 F.X. Lesage (Taine) FRA 343.75 pts
1936 H. Pollay (Kronos) GER 1,760.0 pts
1948 H. Moser (Hummer) SUI 492.5 pts
1952 H. St. Cyr (Master Rufus) SWE 561.0 pts
1956 H. St. Cyr (Juli) SWE 860 pts
1960 S. Filatov (Absent) URS 2,144 pts
1964 H. Chammartin (Woermann) SUI 1,504 pts
1968 I. Kizimov (Ikhor) URS 1,572 pts
1972 L. Linsenhoff (Piaff) GER 1,229 pts
1976 E. Stueckelberger (Granat) SUI 1,486 pts
1980 E. Theurer (Mon Cherie) AUT 1,370 pts
1984 Dr. R. Klimke GER 1,504 pts

Dressage (Team)

Not held before 1928

1928 GER 669.72 pts
1932 FRA 2,818.75 pts
1936 GER 5,074 pts
1948 FRA 1,269 pts
1952 SWE 1,597.5 pts
1956 SWE 2,475 pts
1960 Not held
1964 GER 2,558 pts
1968 GER 2,699 pts
1972 URS 5,095 pts
1976 GER 5,155 pts
1980 URS 4,383 pts
1984 GER 4,955 pts

Three-Day Event (Individual)

Not held before 1912.

1912 A. Nordlander (Lady Artist) SWE 46.59 pts
1920 H. Morner (Germania) SWE 1,775 pts
1924 A.D.C. van der Voort van Zijp (Silver Piece) HOL 1,976 pts
1928 C.F. Pahud de Mortanges (Marcroix) HOL 1,969.82 pts
1932 C.F. Pahud de Mortanges (Marcroix) HOL 1,813.83 pts
1936 L. Stubbendorf (Nurmi) GER 37.70 flts
1948 B. Chevalier (Aiglonne) FRA +4 pts
1952 H. von Blixen-Finecke (Jubal) SWE 28.33 flts
1956 P. Kastenman (Illuster) SWE 66.53 flts
1960 L. Morgan (Salad Days) AUS +7.15 pts
1964 M. Checcoli (Surbean) ITA 64.40 pts
1968 J.J. Guyon (Pitou) FRA 38.86 flts
1972 R. Meade (Laurieston) GBR 57.73 pts
1976 E. Coffin (Bally-Cor) USA 114.99 flts
1980 F.E. Roman (Rossinan) ITA 108.60 flts
1984 M. Todd NZL 51.60 pts

Three-Day Event (Team)

Not held before 1912.

1912 SWE 139.06 pts
1920 SWE 5,057.5 pts
1924 HOL 5,297.5 pts
1928 HOL 5,865.68 pts
1932 USA 5,048.063 pts
1936 GER 676.65 flts
1948 USA *161.50 flts*
1952 SWE 221.94 flts
1956 GBR 355.48 flts
1960 AUS 129.18 flts
1964 ITA *85.40 pts*
1968 GBR 175.93 flts
1972 GBR 95.53 pts
1976 USA 441.00 flts
1980 URS 457.00 flts
1984 USA 166.00 pts

FENCING (MEN)

Foil (Individual)

1896 E. Gravelotte FRA [illegible]
1900 E. Coste FRA [illegible]
1904 R. Fonst CUB [illegible]
1908 Not held
1912 N. Nadi [illegible]
1920 N. Na[illegible]

1924 R. Ducret FRA	6 wins
1928 L. Gaudin FRA	9 wins
1932 G. Marzi ITA	9 wins
1936 G. Gaudini ITA	7 wins
1948 J. Buhan FRA	7 wins
1952 C. d'Oriola FRA	8 wins
1956 C. d'Oriola FRA	6 wins
1960 V. Zhdanovich URS	7 wins
1964 E. Franke POL	3 wins
1968 I. Drimba ROM	4 wins
1972 W. Woyda POL	5 wins
1976 F. Dal Zotto ITA	4 wins
1980 V. Smirnov URS	1 win
1984 M. Numa ITA	nda

Foil (Team)

Not held before 1920, except in 1904 when there was a competition won by Cuba from an international team

1920 ITA
1924 FRA
1928 ITA
1932 FRA
1936 ITA
1948 FRA
1952 FRA
1956 ITA
1960 URS
1964 URS
1968 FRA
1972 POL
1976 GER
1980 FRA
1984 ITA

Epee (Individual)

Not held before 1900

1900 R. Fonst CUB	nda
1904 R. Fonst CUB	nda
1908 G. Alibert FRA	5 wins
1912 P. Anspach BEL	6 wins
1920 A. Massard FRA	9 wins
1924 C. Delporte BEL	8 wins
1928 L. Gaudin FRA	8 wins
1932 G. Cornaggia-Medici ITA	8 wins
1936 F. Riccardi ITA	5 wins
1948 L. Cantone ITA	7 wins
1952 E. Mangiarotti ITA	7 wins
56 C. Pavesi ITA	5 wins
960 G. Delfino ITA	5 wins
1964 G. Kriss URS	2 wins
1968 G. Kulcsar HUN	4 wins
1972 C. Fenyvesi HUN	4 wins
1976 A. Pusch GER	3 wins
1980 J. Harmenberg SWE	4 wins
1984 P. Boisse FRA	nda

Epee (Team)

Not held before 1908

1908 FRA
1912 BEL
1920 ITA
1924 FRA
1928 ITA
1932 FRA
1936 ITA
1948 FRA
1952 ITA
1956 ITA
1960 ITA
1964 HUN
1968 HUN
1972 HUN
1976 SWE
1980 FRA
1984 GER

Sabre (Individual)

1896 I. Georgiadis GRE	4 wins
1900 G. de la Falaise FRA	nda
1904 M. De Diaz CUB	nda
1908 J. Fuchs HUN	6 wins
1912 J. Fuchs HUN	6 wins
1920 N. Nadi ITA	11 wins
1924 S. Posta HUN	5 wins
1928 O. Terszyanszky HUN	9 wins
1932 G. Piller HUN	8 wins
1936 E. Kabos HUN	7 wins
1948 A. Gerevich HUN	7 wins
1952 P. Kovacs HUN	8 wins
1956 R. Karpati HUN	6 wins
1960 R. Karpati HUN	5 wins
1964 T. Pezsa HUN	2 wins
1968 J. Pawlowski POL	4 wins
1972 V. Sidiak URS	4 wins
1976 V. Krovopouskv URS	5 wins
1980 V. Korvopuskov URS	4 wins
1984 J.F. Lamour FRA	nda

Sabre (Team)

Not held before 1908

1908 HUN
1912 HUN
1920 ITA
1924 ITA
1928 HUN
1932 HUN
1936 HUN
1948 HUN
1952 HUN
1956 HUN
1960 HUN
1964 URS
1968 URS
1972 ITA
1976 URS
1980 URS
1984 ITA

FENCING (WOMEN)

Foil (Individual)

Not held before 1924.

1924 E. Osiier DEN	5 wins
1928 H. Mayer GER	7 wins
1932 E. (Preis) Muller AUT	8 wins
1936 I. Elek HUN	6 wins
1948 I. Elek HUN	6 wins
1952 I. Camber ITA	5 wins
1956 G. Sheen GBR	6 wins
1960 H. Schmid GER	6 wins
1964 I. (Ujlaki) Rejto HUN	2 wins
1968 Y. Novikova URS	4 wins
1972 A. (Ragno) Lonzi ITA	4 wins
1976 I. Schwarczenberger HUN	4 wins
1980 P. Trinquet FRA	4 wins
1984 J. Luan CHN	nda

Foil (Team)

Not held before 1960.

1960 URS
1964 HUN
1968 URS
1972 URS
1976 URS
1980 FRA
1984 GER

GYMNASTICS (MEN)

Combind Exercises (Individual)

Not held before 1900.

1900 G. Sandras FRA	302
1904 J. Lenhart AUT	69 80
1908 A. Braglia ITA	317
1912 A. Braglia ITA	135
1920 G. Zamponi ITA	88.35
1924 L. Stukelj YUG	110.340
1928 G. Miez SUI	247.500
1932 R. Neri ITA	140.625
1936 A. Schwarzmann GER	133.100
1948 V. Huhtanen FIN	229.7
1952 V. Chukarin URS	115 70
1956 V. Chukarin URS	114 25
1960 B. Shakhlin URS	115 95
1964 Y. Endo JPN	115 95
1968 S. Kato JPN	115 90
1972 S. Kato JPN	114.650
1976 N. Andrianov URS	116 650
1980 A. Dityatin URS	118.650
1984 K. Gushiken JPN	118.700

Combined Exercises (Team)

Not held before 1904.

1904 USA	374 4
1908 SWE	43
1912 ITA	265 7
1920 ITA	359 85
1924 ITA	839 05
1928 SUI	1,718 62
1932 ITA	541 85
1936 GER	657.4
1948 FIN	1,358.
1952 URS	574
1956 URS	568.
1960 JPN	575
1964 JPN	577.
1968 JPN	575.
1972 JPN	571.
1976 JPN	576
1980 URS	589
1984 USA	591

Floor Exercises

Not held before 1932.

1932 I. Pelle HUN	9
1936 G. Miez SUI	18
1948 F. Pataki HUN	3
1952 W. Thoresson SWE	1
1956 V. Muratov URS	1
1960 N. Aihara JPN	1
1964 F. Menichelli ITA	1
1968 S. Kato JPN	19.
1972 N. Andrianov URS	19.
1976 N. Andrianov URS	19
1980 R. Bruckner GDR	19
1984 N. Li CHN	19

Horizontal Bar

1896 H. Weingartner GER
1900 Not held
1904 A. Heida USA &

E. Hennig USA 40 pts
1908–1920 Not held
1924 L. Stukelj YUG 19.73 pts
1928 G. Miez SUI 19.17 pts
1932 D. Bixler USA 18.33 pts
1936 A. Saarvala FIN 19.367 pts
1948 J. Stalder SUI 39.7 pts
1952 J. Gunthard SUI 19.55 pts
1956 T. Ono JPN 19.60 pts
1960 T. Ono JPN 19.60 pts
1964 B. Shakhlin URS 19.625 pts
1968 M. Voronin URS & A. Nakayama JPN 19.550 pts
1972 M. Tsukahara JPN 19.725 pts
1976 M. Tsukahara JPN 19.675 pts
1980 S. Deltchev BUL 19.825 pts
1984 S. Morisue JPN 20.000 pts

Parallel Bars

1896 A. Flatow GER
1900 Not held
1904 G. Eyser USA 44 pts
1908–1920 Not held
1924 A. Guttinger SUI 21.63 pts
1928 L. Vacha TCH 18.83 pts
1932 R. Neri ITA 28.97 pts
1936 K. Frey GER 19.067 pts
1948 M. Reusch SUI 39.50 pts
1952 H. Eugster SUI 19.65 pts
1956 V. Chukarin URS 19.20 pts
1960 B. Shakhlin URS 19.40 pts
1964 Y. Endo JPN 19.675 pts
1968 A. Nakayama JPN 19.475 pts
1972 S. Kato JPN 19.475 pts
1976 S. Kato JPN 19.675 pts
1980 A. Tkachyov URS 19.775 pts
1984 B. Conner USA 19.950 pts

Pommelled Horse

1896 J.A. Zutter SUI
1900 Not held
1904 A. Heida USA 42 pts
1908–1920 Not held
1924 J. Wilhelm SUI 21.23 pts
1928 H. Hanggi SUI 19.75 pts
1932 I. Peelle HUN 19.07 pts
1936 K. Frey GER 19.333 pts
1948 P. Aaltonen FIN
V. Huhtanen FIN
H. Savolainen FIN 38.7 pts
1952 V. Chukarin URS 19.50 pts
1956 B. Shakhlin URS 19.25 pts
1960 E. Ekman FIN & B. Shakhlin URS 19.375 pts
1964 M. Cerar YUG 19.525 pts
1968 M. Cerar YUG 19.325 pts
1972 V. Klimenko URS 19.125 pts
1976 Z. Magyar HUN 19.700 pts
1980 Z. Magyar HUN 19.925 pts
1984 N. Li CHN & P. Vidmar USA 19.950 pts

Long Horse Vault

1896 C. Schuhmann GER
1900 Not held
1904 A. Heida USA & G. Eyser USA 36 pts
1908–1920 Not held
1924 F. Kriz USA 9.98 pts
1928 E. Mack SUI 9.58 pts
1932 S. Guglielmetti ITA 18.03 pts
1936 A. Schwarzmann GER 19.20 pts
1948 P. Aaltonen FIN 39.1 pts
1952 V. Chukarin URS 19.20 pts
1956 H. Bantz GER & V. Muratov URS 18.85 pts
1960 T. Ono JPN & B. Shakhlin URS 19.35 pts
1964 H. Yamashita JPN 19.660 pts
1968 M. Voronin URS 19.000 pts
1972 K. Koste GDR 18.850 pts
1976 N. Andrianov URS 19.450 pts
1980 N. Andrianov URS 19.825 pts
1984 Y. Lou CHN 19.950 pts

Rings

1896 I. Mitropoulos GRE
1900 Not held
1904 H. Glass USA 45 pts
1908–1912 Not held
1924 F. Martino ITA 21.553 pts
1928 L. Stukelj YUG 19.25 pts
1932 G. Gulack USA 18.97 pts
1936 A. Hudec TCH 19.433 pts
1948 K. Frei SUI 39.6 pts
1952 G. Shagimyan URS 19.75 pts
1956 A. Azarian URS 19.35 pts
1960 A. Azarian URS 19.725 pts
1964 T. Hayata JPN 19.475 pts
1968 A. Nakayama JPN 19.450 pts
1972 A. Nakayama JPN 19.350 pts
1976 N. Andrianov URS 19.650 pts
1980 A. Dityatin URS 19.875 pts
1984 K. Gushiken JPN & N. Li CHN 19.850 pts

GYMNASTICS (WOMEN)

Combined Exercises (Individual)

Not held before 1952.
1952 M. Gorokhovskaya URS 76.78 pts
1956 L. Latynina URS 74.933 pts
1960 L. Latynina URS 77.031 pts
1964 V. Caslavska TCH 77.564 pts
1968 V. Caslavska TCH 78.25 pts
1972 L. Turischeva URS 77.025 pts
1976 N. Comaneci ROM 79.275 pts
1980 Y. Davydova URS 79.150 pts
1984 M.L. Retton USA 79.175 pts

Combined Exercises (Team)

Not held before 1928
1928 HOL 316.75 pts
1932 Not held
1936 GER 506.50 pts
1948 TCH 445.45 pts
1952 URS 527.03 pts
1956 URS 444.80 pts
1960 URS 382.320 pts
1964 URS 380.890 pts
1968 URS 382.85 pts
1972 URS 380.50 pts
1976 URS 380.35 pts
1980 URS 394.90 pts
1984 ROM 392.20 pts

Beam

Not held before 1952
1952 N. Bocharova URS 19.22 pts
1956 A. Keleti HUN 18.800 pts
1960 E. Bosakova TCH 19.285 pts
1964 V. Caslavska TCH 19.449 pts
1968 N. Kuchinskaya URS 19.650 pts
1972 O. Korbut URS 19.400 pts
1976 N. Comaneci ROM 19.950 pts
1980 N. Comaneci ROM 19.800 pts
1984 S. Pauca ROM 19.800 pts

Asymmetrical Bars

Not held before 1952.
1952 M. Korondi HUN 19.40 pts
1956 A. Keleti HUN 18.966 pts
1960 P. Astakhova URS 19.616 pts
1964 P. Astakhova URS 19.332 pts
1968 V. Caslavska TCH 19.650 pts
1972 K. Janz GDR 19.675 pts
1976 N. Comaneci ROM 20.000 pts
1980 N. Gnauck GDR 19.875 pts
1984 Y. Ma CHN 19.950 pts

Horse Vault

Not held before 1952.
1952 Y. Kalinchuk URS 19.20 pts
1956 L. Latynina URS 18.833 pts
1960 M. Nikolaeva URS 19.316 pts
1964 V. Caslavska TCH 19.483 pts
1968 V. Caslavska TCH 19.775 pts
1972 K. Janz GDR 19.525 pts
1976 N. Kim URS 19.800 pts
1980 N. Shaposhnikova URS 19.725 pts
1984 E. Szabo ROM 19.875 pts

Floor Exercises

Not held before 1952
1952 A. Keleti HUN 19.36 pts
1956 L. Latynina URS & A. Keleti HUN 18.733 pts
1960 L. Latynina URS 19.583 pts
1964 L. Latynina URS 19.899 pts
1968 V. Caslavska TCH & L. Petrik URS 19.675 pts
1972 O. Korbut URS 19.575 pts
1976 N. Kim URS 19.850 pts
1980 N. Kim URS & N. Comaneci ROM 19.875 pts
1984 E. Szabo ROM 19.975 pts

Rhythmic Gymnastics

Not held before 1984
1984 L. Fung CAN 59.951 pts

HANDBALL (MEN)

Not held before 1972
1972 YUG
1976 URS
1980 GDR
1984 YUG

HANDBALL (WOMEN)

Not held before 1976
1976 URS
1980 URS
1984 YUG

HOCKEY (MEN)

Not held before 1908
1908 ENG
1912 Not held
1920 ENG
1924 Not held

1928 IND
1932 IND
1936 IND
1948 IND
1952 IND
1956 IND
1960 PAK
1964 IND
1968 PAK
1972 GER
1976 NZL
1980 IND
1984 PAK

HOCKEY (WOMEN)

Not held before 1980
1980 ZIM
1984 HOL

JUDO

Lightweight

Weight limit 1964 68 kg (149 lb 14½ oz); from 1972 63 kg (138 lb 14¼ oz); Not held before 1964.
1964 T. Nakatani JPN
1968 Not held
1972 T. Kawaguchi JPN
1976 H. Rodriguez CUB

Welterweight

Weight limit 70 kg (154 lb 5 oz) Not held before 1972.
1972 T. Nomura JPN
1976 N. Nevzorov URS

Middleweight

Weight limit 80 kg (176 lb 6 oz) Not held before 1964.
1964 I. Okano JPN
1968 Not held
1972 S Sekine JPN
1976 I. Sonoda JPN

Light Heavyweight

Weight limit 93 kg (205 lb 0½ oz). Not held before 1972.
1972 S. Khokhoshvili URS
976 K. Ninomiya JPN

eavyweight

Weight limit 1964 over 80 kg (176 lb 6 oz); from 1972 over 93 kg (205 lb 0½ oz). Not held before 1964.
1964 I. Inokuma JPN
1968 Not held
1972 W. Ruska HOL
1976 S. Novikov URS

Open

No weight limit. Not held before 1964.
1964 A. Geesink HOL
1968 Not held
1972 W. Ruska HOL
1976 H. Uemura JPN
1980 D. Lorenz GDR
1984 Y. Yamashita JPN

From 1980 all the weight categories were changed with the exception of the open category.

Bantamweight 60 kg (132 lb 4¼ oz)

1980 T. Rey FRA
1984 S. Hosokawa JPN

Featherweight 65 kg (143 lb 4⅓ oz)

1980 N. Solodukhin URS
1984 Y. Matsuoka JPN

Lightweight 71 kg (156 lb 8¼ oz)

1980 E. Gamba ITA
1984 Byeong-Keun Ahn KOR

Light middleweight 78 kg (171 lb 1 oz)

1980 S Khabareli URS
1984 F. Wieneke GER

Middleweight 86 kg (189 lb 9⅓ oz)

1980 J Roethlisberger SUI
1984 P. Seisenbacher AUT

Light heavyweight 95 kg (209 lb 7 oz)

1980 R. Van de Walle BEL
1984 Hyoung—Zoo Ha KOR

Heavyweight Over 95 kg (209 lb 7 oz)

1980 A. Parisi FRA
1984 H Saito JPN

MODERN PENTATHLON

The five events are horse riding, fencing, pistol shooting, swimming and cross-country running From 1912 to 1952 a point for each place achieved in the separate events was awarded i.e. 1 for the winner, 2 for the second etc. In 1956 a scoring system evaluating performance rather than position in each event was introduced.

Modern Pentathlon (Individual)

Not held before 1912.

1912 G Lilliehook SWE	27 pts
1920 G. Dyrssen SWE	18 pts
1924 B Lindman SWE	18 pts
1928 S. Thofelt SWE	47 pts
1932 J. Oxenstierna SWE	32 pts
1936 G. Handrick GER	31.5 pts
1948 W. Grut SWE	16 pts
1952 L Hall SWE	32 pts
1956 L Hall SWE	4,833 pts
1960 F. Nemeth HUN	5,024 pts
1964 F. Torok HUN	5,116 pts
1968 B. Ferm SWE	4,964 pts
1972 A. Balczo HUN	5,412 pts
1976 J. Pyciak-Peciak POL	5,520 pts
1980 A. Starostin URS	5,568 pts
1984 D Masala ITA	5,469 pts

Modern Pentathlon (Team)

Not held before 1952.

1952 HUN	166
1956 URS	13,690 5
1960 HUN	14,863
1964 URS	14,961
1968 HUN	14,325
1972 URS	15,968
1976 GBR	15,559
1980 URS	16,126
1984 ITA	16,060

ROWING (MEN)

The course for all events has be 2,000 m (1 mile 427 yd) since 1952. 1904 it was 3,219 m (2 miles), in 19 2,414 m (1½ miles); in 1948 1,860 (1 mile 296 yd). The records mark take into account only the standardi course.

Single Sculls

Not held before 1900

1900 H. Barrelet FRA	7 min 35
1904 F. Greer USA	10 min 08
1908 H. Blackstaffe GBR	9 min 26
1912 W. D. Kinnear GBR	7 min 47
1920 J. B. Kelly USA	7 min 35
1924 J. Beresford GBR	7 min 49
1928 H Pearce AUS	7 min 11
1932 H Pearce AUS	7 min 44
1936 G Schafer GER	8 min 21
1948 M. Wood AUS	7 min 24
1952 Y. Tyukalov URS	8 min 12
1956 V. Ivanov URS	8 min 02
1960 V. Ivanov URS	7 min 13 9
1964 V. Ivanov URS	8 min 22.5
1968 H J. Wienese HOL	7 min 47.8
1972 Y. Malyshev URS	7 min 10 1
1976 P. Karppinen FIN	7 min 29 0
1980 P. Karppinen FIN	7 min 09 6
1984 P. Karppinen FIN	7 min 00 2

Double Sculls

Not held before 1904.

1904 USA	10 min 03
1908-1912 Not held	
1920 USA	7 min 09
1924 USA	6 min 34
1928 USA	6 min 41.
1932 USA	7 min 17.
1936 GBR	7 min 20.
1948 GBR	6 min 51.
1952 ARG	7 min 32
1956 URS	7 min 24
1960 TCH	6 min 47.5
1964 URS	7 min 10 6
1968 URS	6 min 51.8
1972 URS	7 min 01.7
1976 NOR	7 min 13 2
1980 GDR	6 min 24.3
1984 USA	6 min 36.8

Coxless Pairs

Not held before 1900.

1900 BEL	7 min 49
1904 USA	10 min 57.
1908 GBR	9 min 41.
1912-1920 Not held	
1924 HOL	8 min 19
1928 GER	7 min 06
1932 GBR	8 min 00

1936 GER	8 min 16.1 s
1948 GBR	7 min 21.1 s
1952 USA	8 min 20.7 s
1956 USA	7 min 55.4 s
1960 URS	7 min 02.00 s
1964 CAN	7 min 32.94 s
1968 GDR	7 min 26.56 s
1972 GDR	6 min 53.16 s
1976 GDR	7 min 23.31 s
1980 GDR	6 min 48.01 s
1984 ROM	6 min 45.39 s

Coxed Pairs

Not held before 1900.

1900 HOL	7 min 34.2 s
1904-1912 Not held	
1920 ITA	7 min 56.0 s
1924 SUI	8 min 39.0 s
1928 SUI	7 min 42.6 s
1932 USA	8 min 25.8 s
1936 GER	8 min 36.9 s
1948 DEN	8 min 05.0 s
1952 FRA	8 min 28.6 s
1956 USA	8 min 26.1 s
1960 GER	7 min 29.14 s
1964 USA	8 min 21.23 s
1968 ITA	8 min 04.81 s
1972 GDR	7 min 17.25 s
1976 GDR	7 min 58.99 s
1980 GDR	7 min 02.54 s
1984 ITA	7 min 05.99 s

Quadruple Sculls

Not held before 1980.

1980 GDR	5 min 49.81 s
1984 GER	5 min 57.55 s

Coxless Fours

Not held before 1904.

1904 USA	9 min 53.8 s
1908 GBR	8 min 34.0 s
1912-1920 Not held	
1924 GBR	7 min 08.6 s
1928 GBR	6 min 36.0 s
1932 GBR	6 min 58.2 s
1936 GER	7 min 01.8 s
1948 ITA	6 min 39.0 s
1952 YUG	7 min 16.0 s
1956 CAN	7 min 08.8 s
1960 USA	6 min 26.26 s
1964 DEN	6 min 59.30 s
1968 GDR	6 min 39.18 s
1972 GDR	6 min 24.27 s
1976 BUL	6 min 41.36 s
1980 GDR	6 min 08.17 s
1984 NZL	6 min 03.48 s

Coxed Fours

Not held before 1900. In 1900 there was a dispute and two finals were held, (1) for the crews with the fastest times in the heats and (2) for the winners of the three heats

1900 (1) FRA	7 min 11.0 s
(2) GER	5 min 59.0 s
1904-1908 Not held	
1912 GER	6 min 59.4 s
1920 SUI	6 min 54.0 s
1924 SUI	7 min 18.4 s
1928 ITA	6 min 47.8 s
1932 GER	7 min 19.0 s
1936 GER	7 min 16.2 s
1948 USA	6 min 50.3 s
1952 TCH	7 min 33.4 s
1956 ITA	7 min 19.4 s
1960 GER	6 min 39.12 s
1964 GER	7 min 00.44 s
1968 NZL	6 min 45.62 s
1972 GER	6 min 31.85 s
1976 URS	6 min 40.22 s
1980 GDR	6 min 14.51 s
1984 GBR	6 min 20.28 s

Eights

Not held before 1900

1900 USA	6 min 09.8 s
1904 USA	7 min 50.0 s
1908 GBR	7 min 52.0 s
1912 GBR	6 min 15.0 s
1920 USA	6 min 02.6 s
1924 USA	6 min 33.4 s
1928 USA	6 min 03.2 s
1932 USA	6 min 37.6 s
1936 USA	6 min 25.4 s
1948 USA	5 min 46.7 s
1952 USA	6 min 25.9 s
1956 USA	6 min 35.2 s
1960 GER	5 min 57.18 s
1964 USA	6 min 18.23 s
1968 GER	6 min 07.00 s
1972 NZL	6 min 08.94 s
1976 GDR	5 min 58.29 s
1980 GDR	5 min 49.05 s
1984 CAN	5 min 41.32 s

ROWING (WOMEN)

Not held before 1976

Single Sculls

1976 C. Scheiblich GDR	4 min 05.56 s
1980 S. Toma ROM	3 min 40.68 s
1984 V. Racila ROM	3 min 40.68 s

Double Sculls

1976 BUL	3 min 44.36 s
1980 URS	3 min 16.27 s
1984 ROM	3 min 26.75 s

Quadruple Sculls

1976 GDR	3 min 29.99 s
1980 GDR	3 min 15.32 s
1984 ROM	3 min 14.11 s

Coxless Pairs

1976 BUL	4 min 01.22 s
1980 GDR	3 min 30.49 s
1984 ROM	3 min 32.60 s

Coxed Pairs

1976 GDR	3 min 45.08 s
1980-1984 Not held	

Coxed Fours

Not held before 1980

1980 GDR	3 min 19.27 s
1984 ROM	3 min 19.30 s

Eights

1976 GDR	3 min 33.32 s
1980 GDR	3 min 03.32 s
1984 USA	2 min 59.80 s

SHOOTING (MEN)

Free Pistol

Range 50 m (55 yd)

1896 S. Paine (USA)	442 pts
1900 K. Roderer SUI	503 pts
1904-1908 Not held	
1912 A. Lane USA	499 pts
1920 C. Frederick USA	496 pts
1924-1932 Not held	
1936 T. Ullman SWE	559 pts
1948 E. Vasquez Cam PER	545 pts
1952 H. Benner USA	553 pts
1956 P. Linnosvuo FIN	556 pts
1960 A. Gushchin URS	560 pts
1964 V. Markkanen FIN	560 pts
1968 G. Kosykh URS	562 pts
1972 R. Skanaker SWE	567 pts
1976 U. Potteck GDR	573 pts
1980 A. Melentev URS	581 pts
1984 H. Xu CHN	566 pts

Moving Target (Running Boar)

Not held in its present form before 1972.
Range 50 m (55 yd)

1972 L. Zheleznak URS	569 pts
1976 A. Gazov URS	579 pts
1980 I. Sokolov URS	589 pts
1984 Y. Li CHN	587 pts

Rapid Fire Pistol

Range 25 m (27 yd 1 ft)

1896 J. Franguds GRE	344 pts
1900 M. Larrouy FRA	58 pts
1904 Not held	
1908 P. van Asbroeck BEL	490 pts
1912 A. Lane USA	287 pts
1920 G. Paraense BRA	274 pts
1924 N. H. Bailey USA	18 pts
1928 Not held	
1932 R. Morigi ITA	36 pts
1936 C. Van Oyen GER	36 pt
1948 K. Takacs HUN	580 pts
1952 K. Takacs HUN	579 pts
1956 S. Petrescu ROM	587 pts
1960 W. McMillan USA	587 pts
1964 P. Linnosvuo FIN	592 pts
1968 J. Zapedski POL	593 pts
1972 J. Zapedski POL	595 pts
1976 N. Klaar GDR	597 pts
1980 C. Ion ROM	596 pts
1984 T. Kamachi JPN	595 pts

Smallbore Rifle (Prone)

Not held before 1908. Range 50 m (55 yd) except in 1908 when range was 45.7 and 91.4 m (50 and 100 yd), 40 shots. In 1908-12 competitors could fire from any position, in 1920 standing, from 1924 prone

1908 A. A. Carnell GBR	547 pts
1912 F. Hird USA	194 pts
1920 L. A. Nuesslein USA	391 pts
1924 P. C. de Lisle FRA	395 pts
1928 Not held	
1932 B. Rønnmark SWE	94 pts

936 W. Rogeberg NOR	300 pts
948 A. Cook USA	599 pts
952 I. Sarbu ROM	400 pts
956 G. R. Quellette CAN	600 pts
960 P. Kohnke GER	590 pts
964 L. Hammerl HUN	597 pts
1968 J. Kurka TCH	598 pts
1972 H. J. Li PRK	599 pts
1976 K. Smieszek GER	599 pts
1980 K. Varga HUN	599 pts
1984 E. Etzel USA	599 pts

Smallbore Rifle (Three Positions)

Not held before 1952. Range 50 m (55 yd).
Standing, kneeling, prone.

1952 E. Kongshaug NOR	1,164 pts
1956 A. Bogdanov URS	1,172 pts
1960 V. Shamburkin URS	1,149 pts
1964 L. Wigger USA	1,164 pts
1968 B. Klingner GER	1,157 pts
1972 J. Writer USA	1,166 pts
1976 L. Bassham USA	1,162 pts
1980 V. Vlasov URS	1,173 pts
1984 M. Cooper GBR	1,173 pts

Trap Shooting

Not held before 1900. 200 pigeons, except in 1908 when there were 80.

1900 R. de Barbarin FRA	17 pts
1904 Not held	
1908 W. H. Ewing CAN	72 pts
1912 J. Graham USA	96 ps
1920 M. Arie USA	95 pts
1924 G. Halasy HUN	98 pts
1928-1948 Not held	
1952 G. P. Genereux CAN	192 pts
1956 G. Rossini ITA	195 pts
1960 I. Dumitrescu ROM	192 pts
1964 E. Mattarelli ITA	198 pts
1968 J. R. Braithwaite GBR	198 pts
1972 A. Scalzone ITA	199 pts
1976 D Haldeman USA	190 pts
1980 L. Giovannetti ITA	198 pts
1984 L. Giovannetti ITA	192 pts

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ot held before 1968.

1968 Y. Petrov URS	198 pts
1972 K. Wirnhler GER	195 pts
1976 J. Panacek TCH	198 pts
1980 H. Rasmussen DEN	196 pts
1984 M. Dryke USA	198 pts

Air Rifle

Not held before 1984.

1984 P. Heberle FRA	589 pts

SHOOTING (WOMEN)

Not held before 1984.

Air Rifle

1984 Pat Spurgin USA	393 pts

Smallbore Rifle (three Positions)

1984 Xiaoxuan Wu CHN	581 pts

Sport Pistol

1984 Linda Thom CAN	585 pts

SWIMMING AND DIVING (MEN)

100 Metres Freestyle

In 1904 the distance was 91.44 m (100 yd).

1896 A. Hajos (Guttmann) HUN	1 min 22.2 s
1900 Not held	
1904 Z. von Halmay HUN	1 min 02.8 s
1908 C. Daniels USA	1 min 05.6 s
1912 D. P. Kahanamoku USA	1 min 03.4 s
1920 D. P. Kahanamoku USA	1 min 01.4 s
1924 J. Weissmuller USA	59.0 s
1928 J. Weissmuller USA	58.6 s
1932 Y. Miyazaki JPN	58.2 s
1936 F. Csik HUN	57.6 s
1948 W. Ris USA	57.3 s
1952 C. Scholes USA	57.4 s
1956 J. Henricks AUS	55.4 s
1960 J. Devitt AUS	55.2 s
1964 D. Schollander USA	53.4 s
1968 M. Wended AUS	52.2 s
1972 M. Spitz USA	51.22 s
1976 J. Montogomery USA	49.99 s
1980 J. Woithe GDR	50.40 s
1984 A. Gaines USA	49.80 s

200 Metres Freestyle

Not held before 1900. In 1904 the distance was 201.17 m (220 yd).

1900 F. Lane AUS	2 min 25.2 s
1904 C. Daniels USA	2 min 44.2 s
1908-1964 Not held	
1968 M. Wenden AUS	1 min 55.2 s
1972 M. Spitz USA	1 min 52.78 s
1976 B Furniss USA	1 min 50.29 s
1980 S. Kopliakov URS	1 min 49.81 s
1984 M. Gross GER	1 min 47.44 s

400 Metres Freestyle

Not held before 1904. In 1904 the distance was 402.3 m (440 yd).

1904 C. Daniels USA	6 min 16.2 s
1908 H. Taylor GBR	5 min 36.8 s
1912 G. Hodgson CAN	5 min 24.4 s
1920 N. Ross USA	5 min 26.8 s
1924 J. Weissmuller USA	5 min 04.2 s
1928 A. Zorilla ARG	5 min 01.6 s
1932 C. Crabbe USA	4 min 48.4 s
1936 J. Medica USA	4 min 44.5 s
1948 W. Smith USA	4 min 41.0 s
1952 J. Boiteux FRA	4 min 30.7 s
1956 M. Rose AUS	4 min 27.3 s
1960 M. Rose AUS	4 min 18.3 s
1964 D. Schollander USA	4 min 12.2 s
1968 M. Burton USA	4 min 09.0 s
1972 B. Cooper AUS	4 min 00.27 s
1976 B. Goodell USA	3 min 51.93 s
1980 V. Salnikov URS	3 min 51.31 s
1984 G. Dicarlo USA	3 min 51.23 s

1,500 Metres Freestyle

In 1896 the distance was 1,200 m (1,310 yd 1 ft 5½ in); in 1900 1,000 m (1,093 yd 1 ft 10 in), in 1904 1,609.34 m (1 mile)

1896 A. Hajos HUN	18 min 22.2 s
1900 J. Jarvis GBR	13 min 40.2 s
1904 E. Rausch GER	27 min 18.2 s
1908 H. Taylor GBR	22 min 48.4 s
1912 G. Hodgson CAN	22 min 00.0 s
1920 N. Ross USA	22 min 23.2 s
1924 A. Charlton AUS	20 min 06.6 s
1928 A. Borg SWE	19 min 51.8 s
1932 K. Kitamura JPN	19 min 12.4 s
1936 N. Terada JPN	19 min 13.7 s
1948 J. McLane USA	19 min 18.5 s
1952 F. Konno USA	18 min 30.3 s
1956 M. Rose AUS	17 min 58.9 s
1960 J. Konrads AUS	17 min 19.6 s
1964 R. Windle AUS	17 min 01.7 s
1968 M. Burton USA	16 min 38.9 s
1972 N. Burton USA	15 min 52.58 s
1976 B. Goodell USA	15 min 02.40 s
1980 V. Salnikov URS	14 min 58.27 s
1984 M. O'Brien USA	15 min 05.20 s

100 Metres Backstroke

Not held before 1904. In 1904 the distance was 91.44 m (100 yd).

1904 W. Brack GER	1 min 16.8 s
1908 A. Bieberstein GER	1 min 24.6 s
1912 H. Hebner USA	1 min 21.2 s
1920 W. P. Kealoha USA	1 min 15.2 s
1924 W. P. Kealoha USA	1 min 13.2 s
1928 G. Kojac USA	1 min 08.2 s
1932 M. Kiyokawa JPN	1 min 08.6 s
1936 A. Kiefer USA	1 min 05.9 s
1948 A. Stack USA	1 min 06.4 s
1952 Y. Oyakawa USA	1 min 05.4 s
1956 D. Theile AUS	1 min 02.2 s
1960 D. Theile AUS	1 min 01.9 s
1964 Not held	
1968 R. Matthes GDR	58.7 s
1972 R. Matthes GDR	56.58 s
1976 J. Naber USA	55.49 s
1980 B. Baron SWE	56.53 s
1984 R. Carey USA	55.79

200 Metres Backstroke

Not held before 1900

1900 E. Hoppenberg GER	2 min 47.0
1904-1960 Not held	
1964 J. Graef USA	2 min 10.3
1968 R. Matthes GDR	2 min 09.0
1972 R. Matthes GDR	2 min 02.8
1976 J. Naber USA	1 min 59.1
1980 S. Wladar HUN	2 min 01.5
1984 R. Carey USA	2 min 00.2

100 Metres Breaststroke

Not held before 1968

1968 D. McKenzie USA	1 min 0
1972 N. Taguchi JPN	1 min 04
1976 J. Hencken USA	1 min 03
1980 D Goodhew GBR	1 min 03
1984 S. Lundquist USA	1 min

200 Metres Breaststroke

Not held before 1908.

1908 F. Holman GBR	3 min
1912 W. Bathe GER	3 min
1920 H. Malmroth SWE	3 min
1924 R. Skelton USA	2 mir
1928 Y. Tsuruta JPN	2 mir
1932 Y. Tsuruta JPN	2 mir
1936 T. Hamuro JPN	2 mi

1948 J. Verdeur USA	2 min 39.3 s
1952 J. Davies AUS	2 min 34.4 s
1956 M. Furukawa JPN	2 min 34.7 s
1960 W. Mulliken USA	2 min 37.4 s
1964 I. O'Brien AUS	2 min 27.8 s
1968 F. Munoz MEX	2 min 28 7 s
1972 J. Hencken USA	2 min 21.55 s
1976 D. Wilkie GBR	2 min 15.11 s
1980 R. Zulpa URS	2 min 15.85 s
1984 V. Davis CAN	2 min 13.34 s

100 Metres Butterfly

Not held before 1968.

1968 D. Russell USA	55.9 s
1972 M. Spitz USA	54 27 s
1976 M. Vogel USA	54.35 s
1980 P. Arvidsson SWE	54 92 s
1984 M. Gross GER	53.08 s

200 Metres Butterfly

Not held before 1956

1956 W. Yorzyk USA	2 min 19.3 s
1960 M. Troy USA	2 min 12.8 s
1964 K. Berry Aus	2 min 06 6 s
1968 C. Robie USA	2 min 08.7 s
1972 M. Spitz USA	2 min 00.70 s
1976 M. Bruner USA	1 min 59.23 s
1980 S. Fesenko URS	1 min 59.76 s
1984 J. Sieben AUS	1 min 57.04 s

200 Metres Individual Medley

Not held before 1984.

1984 A. Baumann CAN	2 min 01.42 s

400 Metres Individual Medley

Not held before 1964. Order of strokes: butterfly, backstroke, breaststroke, freestyle.

1964 R. Roth USA	4 min 45 4 s
1968 C. Hickcox USA	4 min 48.4 s
1972 G. Larsson SWE	4 min 31.98 s
1976 R. Strachan USA	4 min 23 68 s
1980 A. Sidorenko URS	4 min 22.89 s
1984 A. Baumann CAN	4 min 17.41 s

4 × 100 Metres Freestyle

Not held before 1984.

1984 USA	3 min 19.03 s

4 × 100 Metres Medley Relay

Not held before 1960. Order of strokes: backstroke, breaststroke, butterfly, freestyle.

1960 USA	4 min 05.4 s
1964 USA	3 min 58 4 s
1968 USA	3 min 54 9 s
1972 USA	3 min 48.16 s
1976 USA	3 min 42.22 s
1980 AUS	3 min 45.70 s
1984 USA	3 min 39.30 s

4 × 200 Metres Freestyle Relay

Not held before 1908.

1908 GBR	10 min 55 6 s
1912 AUS	10 min 11.6 s
1920 USA	10 min 04.4 s
1924 USA	9 min 53.4 s
1928 USA	9 min 36.2 s
1932 JPN	8 min 58.4 s
1936 JPN	8 min 51.5 s
1948 USA	8 min 46.0 s
1952 USA	8 min 31.1 s
1956 AUS	8 min 23.6 s
1960 USA	8 min 10 2 s
1964 USA	7 min 52.1 s
1968 USA	7 min 52.3 s
1972 USA	7 min 35.78 s
1976 USA	7 min 23.22 s
1980 URS	7 min 23 50 s
1984 USA	7 min 15 69 s

Highboard Diving

Not held before 1904 In 1904 and 1908 this was a combined highboard and springboard event. In 1928 Desjardins gained a superior aggregate of placings to Simaika although the latter gained more points.

1904 G. Sheldon USA	12.66 pts
1908 H. Johansson SWE	83.75 pts
1912 E. Adlerz SWE	73.94 pts
1920 C. Pinkston USA	100.67 pts
1924 A. White USA	97 46 pts
1928 P. Desjardins USA	98.74 pts
1932 H. Smith USA	124 80 pts
1936 M. Wayne USA	113.58 pts
1948 S. Lee USA	130.05 pts
1952 S. Lee USA	156 28 pts
1956 J Capilla Perez MEX	152.44 pts
1960 R. Webster USA	165 56 pts
1964 R. Webster USA	148 58 pts
1968 K. Dibiasi ITA	164.18 pts
1972 K. Dibiasi ITA	504 12 pts
1976 K. Dibiasi ITA	600 51 pts
1980 F. Hoffmann GDR	835 650 pts
1984 M. Rourke CAN	60.75 pts

Springboard Diving

Not held before 1908

1908 Albert Zurner GER	85 5 pts
1912 P. Gunther GER	79 23 pts
1920 L. Kuehn USA	675 40 pts
1924 A. White USA	696 40 pts
1928 P. Desjardins USA	185 04 pts
1932 M. Galitzen USA	161.38 pts
1936 R. Degener USA	163.57 pts
1948 B. Harlan USA	163 64 pts
1952 D. Browning USA	205.29 pts
1956 R. Clotworthy USA	159 56 pts
1960 G. Tobian USA	170 00 pts
1964 K. Sitzberger USA	159.90 pts
1968 B. Wrightson USA	170 15 pts
1972 V. Vasin URS	594 09 pts
1976 P. Boggs USA	619 05 pts
1980 A. Portnov URS	905 025 pts
1984 G. Louganis USA	754 41 pts

Water Polo

Not held before 1900

1900 GBR	
1904 USA	
1908 GBR	
1912 GBR	
1920 GBR	
1924 FRA	
1928 GER	
1932 HUN	
1936 HUN	
1948 ITA	
1952 HUN	
1956 HUN	
1960 ITA	
1964 HUN	
1968 YUG	
1972 URS	
1976 HUN	
1980 URS	
1984 YUG	

SWIMMING AND DIVING (WOMEN)

100 Metres Freestyle

Not held before 1912.

1912 F. Durack AUS	1 min 22.2 s
1920 E. Bleibtrey USA	1 min 13 6 s
1924 E. Lackie USA	1 min 12.4 s
1928 A. Osipowich USA	1 min 11 0 s
1932 H Madison USA	1 min 06.8 s
1936 H Mastenbroek HOL	1 min 05.9 s
1948 G Andersen DEN	1 min 06.3 s
1952 K Szoke HUN	1 min 06 8 s
1956 D Fraser AUS	1 min 02 0 s
1960 D Fraser AUS	1 min 01.2 s
1964 D Fraser AUS	59 5 s
1968 J Henne USA	1 min 00 0 s
1972 S Neilson USA	58.59 s
1976 K Ender GDR	55 65 s
1980 B. Krause GDR	54 79 s
1984 C. Steinseifer USA & N Hogshead USA	55 92 s

200 Metres Freestyle

Not held before 1968.

1968 D Meyer USA	2 min 10 5 s
1972 S. Gould AUS	2 min 03 56 s
1976 K Ender GDR	1 min 59 26 s
1980 B Krause GDR	1 min 58 33 s
1984 M Wayte USA	1 min 59 23 s

400 Metres Freestyle

Not held before 1920 In 1920 the distance was 300 m (328 yd 1 in)

1920 E. Bleibtrey USA	4 min 34 0 s
1924 M Norelius USA	6 min 02 2 s
1928 M Norelius USA	5 min 42 8 s
1932 H Madison USA	5 min 28 5 s
1936 H Mastenbroek HOL	5 min 26 4 s
1948 A. Curtis USA	5 min 17 8 s
1952 V Gyenge HUN	5 min 12 1 s
1956 L Crapp AUS	4 min 54 6 s
1960 C Von Saltza USA	4 min 50 6 s
1964 V Duenkel USA	4 min 43 3 s
1968 O Meyer USA	4 min 31 8 s
1972 S Gould AUS	4 min 19 04 s
1976 P Thumer GDR	4 min 09 89 s
1980 I Diers GDR	4 min 08 76 s
1984 T Golen USA	4 min 07 10 s

800 Metres Freestyle

Not held before 1968

1968 D Meyer USA	9 min 24 0 s
1972 K. Rothhammer USA	8 min 53 68 s
1976 P Thumer GDR	8 min 37 [illegible] s

1980 M. Ford AUS	8 min 28.90 s
1984 T Cohen USA	8 min 24 95 s

100 Metres Backstroke

Not held before 1924.

1924 S. Bauer USA	1 min 23 2 s
1928 MJ Braun HOL	1 min 22.0 s
1932 E. Holm USA	1 min 19 4 s
1936 D. Senff HOL	1 min 18.9 s
1948 KM. Harup DEN	1 min 14.4 s
1952 J. Harisson SAF	1 min 14.3 s
1956 J Grinham GBR	1 min 12 9 s
1960 L. Burke USA	1 min 09.3 s
1964 C. Ferguson USA	1 min 07.7 s
1968 K. Hall USA	1 min 06 2 s
1972 M. Belote USA	1 min 05.78 s
1976 U Richter GDR	1 min 01.83 s
1980 R. Reinisch GDR	1 min 00 86 s
1984 T. Andrews USA	1 min 02.55 s

200 Metres Backstroke

Not held before 1968

1968 L. Watson USA	2 min 24 8 s
1972 M. Belote USA	2 min 19 19 s
1976 U. Richter GDR	2 min 13.43 s
1980 R. Reinisch GDR	2 min 11 77 s
1984 J. de Rover HOL	2 min 12.38 s

100 Metres Breaststroke

Not held before 1968

1968 D Bjedov YUG	1 min 15 8 s
1972 C. Carr USA	1 min 13 58 s
1976 H Anka GDR	1 min 11 16 s
1980 U Geweniger GDR	1 min 10.22 s
1984 P. Van Staveren HOL	1 mn 09 88 s

200 Metres Breaststroke

Not held before 1924

1924 L. Morton GBR	3 mn 33 2 s
1928 H. Schrader GER	3 mn 12 6 s
1932 C. Dennis AUS	3 mn 06.3 s
1936 H. Maehata JPN	3 mn 03 6 s
1948 P. van Vliet HOL	2 mn 57 2 s
1952 E. Szekely HUN	2 mn 51 7 s
1956 U. Happe GER	2 mn 53 1 s
1960 A. Londsbrough GBR	2 mn 49 5 s
1964 G Prosumenshchikova URS	2 mn 46 4 s
68 S. Wichman USA	2 mn 44 4 s
72 B. Whitfield AUS	2 mn 41 71 s
76 M Koshevaia URS	2 mn 33.35 s
1980 L Kachushite URS	2 mn 29 54 s
1984 A. Ottenbrite CAN	2 mn 30.28 s

100 Metres Butterfly

Not held before 1956

1956 S. Mann USA	1 min 11.0 s
1960 C. Schuler USA	1 mn 09.5 s
1964 S. Stouder USA	1 min 04.7 s
1968 L. McClements AUS	1 min 05 5 s
1972 M. Aoki JPN	1 min 03.34 s
1976 K. Ender GDR	1 min 00.13 s
1980 C. Metschuck GDR	1 mn 00 42 s
1984 M.T. Meagher USA	59.26 s

200 Metres Butterfly

Not held before 1968

1968 A. Kok HOL	2 min 24.7 s
1972 K. Moe USA	2 min 15.57 s
1976 A. Pollack GDR	2 min 11.41 s
1980 I. Geissler GDR	2 min 10.44 s
1984 M.T. Meagher USA	2 min 06 90 s

200 Metres Inndividual Medley

Not held before 1968. Order of strokes. butterfly, backstroke, breaststroke, freestyle.

1968 C. Kolb USA	2 min 24.7 s
1972 S. Gould AUS	2 min 23 07 s
1976 and 1980 Not held	
1984 T. Caulkins USA	2 min 12 64 s

400 Metres Individual Medley

Not held before 1964. Order of strokes butterfly, backstroke, breaststroke, freestyle.

1964 D. De Varona USA	5 min 18.7 s
1968 C. Kolb USA	5 min 08 5 s
1972 G Neall AUS	5 min 02.97 s
1976 U Tauber GDR	4 min 42.77 s
1980 P. Schneider GDR	4 min 36.29 s
1984 T Caulkins USA	4 min 39.24 s

4×100 Metres Freestyle Relay

Not held before 1912

1912 GBR	5 min 52.8 s
1920 USA	5 min 11 6 s
1924 USA	4 min 58.8 s
1928 USA	4 min 47.6 s
1932 USA	4 min 38 0 s
1936 HOL	4 min 36.0 s
1948 USA	4 min 29.2 s
1952 HUN	4 min 24.4 s
1956 AUS	4 min 17.1 s
1960 USA	4 min 08 9 s
1964 USA	4 min 03.8 s
1968 USA	4 min 02.5 s
1972 USA	3 min 55 19 s
1976 USA	3 min 44.82 s
1980 GDR	3 min 42.71 s
1984 USA	3 min 43 43 s

4×100 Metres Medley Relay

Not held before 1960 Order of strokes backstroke, breaststroke, butterfly, freestyle.

1960 USA	4 min 41.1 s
1964 USA	4 min 33.9 s
1968 USA	4 min 28 3 s
1972 USA	4 min 20.75 s
1976 GDR	4 min 07.95 s
1980 GDR	4 min 06 67 s
1984 USA	4 min 08.34 s

Highboard Diving

Not held before 1912. In 1924 Smith gained a superior aggregate of placings to Becker although the latter gained more points.

1912 G Johansson SWE	39.90 pts
1920 S(Clausen) Fryland DEN	34 60 pts
1924 C. Smith USA	33 20 pts
1928 E. (Becker) Pinkston USA	31.60 pts
1932 D. (Poynton) Hill USA	40 26 pts
1936 D. (Poynton) Hill USA	33.93 pts
1948 V. Draves USA	68.87 pts
1952 P. McCormick USA	79.37 pts
1956 P. McCormick USA	84 85 pts
1960 L (Kramer) Engel GER	91.28 pts
1964 L Bush USA	99 80 pts
1968 M. Duchkova TCH	09 59 pts
1972 U Knape SWE	390 00 pts
1976 E. Vaytsekhovskaya URS	406.59 pts
1980 M. Jaschke GDR	596 250 pts
1984 J Zhou CHN	435 51 pts

Springboard Diving

Not held before 1920

1920 A. Riggin USA	539 90 pts
1924 E. Becker USA	474 50 pts
1928 H Meany USA	78 62 pts
1932 G. Coleman USA	87.52 pts
1936 M. Gestring USA	89.27 pts
1948 V. Draves USA	108.74 pts
1952 P. McCormick USA	147.30 pts
1956 P. Mccormick USA	142.36 pts
1960 J (Kramer) Engel GER	155.81 pts
1964 J. (Kramer) Engel GER	145 00 pts
1968 S Gossick USA	150.77 pts
1972 M. King USA	450 03 pts
1976 J. Chandler USA	506 19 pts
1980 I Kalinina URS	725 910 pts
1984 S. Bernier CAN	530 70 pts

Synchronised Swimming

Not held before 1984.

1984 USA	195.584 pts

VOLLEYBALL (MEN)

Not held before 1964

1964 URS	
1968 URS	
1972 JPN	
1976 POL	
1980 URS	
1984 USA	

VOLLEYBALL (WOMEN)

Not held before 1964

1964 JPN	
1968 URS	
1972 URS	
1976 JPN	
1980 URS	
1984 CHN	

WEIGHTLIFTING

Flyweight

Not held before 1972. Weight limit 52 kg (114½ lb)

1972 Z. Smalcerz POL	337.5 kg
1976 A. Voronin URS	342.5 kg
1980 K. Osmanoliev URS	345.0 kg
1984 G. Zheng CHN	335.0 kg

Bantamweight

Not held before 1948 Weight limit 56 kg (123¼ lb).

1948 J. De Pietro USA	307.5 kg
1952 I. Udodov URS	315.0 kg
1956 C. Vinci USA	342.5 kg
1960 C. Vinci USA	345.0 kg
1964 A. Vakhonin URS	357.5 kg
1968 M. Nassiri IRN	367.5 kg
1972 I. Foldi HUN	377.5 kg
1976 N. Nurikyan BUL	262.0 kg
1980 D. Nunez CUB	275.0 kg
1984 Shude Wu CHN	267.5 kg

Featherweight

Not held before 1920. Weight limit 60 kg (132¼ lb).

1920	F. de Haes BEL	220.0 kg
1924	P. Gabetti ITA	402.5 kg
1928	F. Andrysek AUT	287.5 kg
1932	R. Suvigny FRA	287.5 kg
1936	A. Terlazzo USA	312.5 kg
1948	M. Fayad EGY	332.5 kg
1952	R. Chimishkian URS	337.5 kg
1956	I. Berger USA	352.5 kg
1960	Y. Minaev URS	372.5 kg
1964	Yoshinobu Miyake JPN	397.5 kg
1968	Yoshinobu Miyake JPN	392.5 kg
1972	N. Nurikyan BUL	402.5 kg
1976	N. Kolesnikov URS	285.0 kg
1980	V. Mazin URS	290.0 kg
1984	W. Chen CHN	282.5 kg

Lightweight

Not held before 1920. Weight limit 67.5 kg (148¾ lb).

1920	A. Neuland EST	257.5 kg
1924	E. Decottignies FRA	440.0 kg
1928	K. Helbig GER & H. Haas AUT	322.5 kg
1932	R. Duverger FRA	325.0 kg
1936	A.M. Mesbah EGY & R. Fein AUT	342.5 kg
1948	I.H. Shams EGY	360.0 kg
1952	T. Kono USA	362.0 kg
1956	I. Rybak URS	380.0 kg
1960	V. Bushuev URS	397.5 kg
1964	W. Baszanowski POL	432.5 kg
1968	W. Baszanowski POL	437.5 kg
1972	M. Kirzhinov URS	460.0 kg
1976	P. Korol URS	305.0 kg
1980	Y. Roussev BUL	342.5 kg
1984	J. Yao CHN	320.0 kg

Middleweight

Not held before 1920. Weight limit 75 kg (165 ¼ lb).

1920	H. Gance FRA	245.0 kg
1924	C. Galimberti ITA	492.5 kg
1928	R. Francois FRA	335.0 kg
1932	R. Ismayr GER	345.0 kg
1936	K.S. el Touni EGY	387.5 kg
1948	F. Spellman USA	390.0 kg
1952	P. George USA	400.0 kg
1956	F. Bogdanovski URS	420.0 kg
1960	A. Kurinov URS	437.5 kg
1964	H. Zdrazila TCH	445.0 kg
1968	V. Kurentsov URS	475.0 kg
1972	Y. Bikov BUL	485.0 kg
1976	Y. Mitkov BUL	335.0 kg
1980	A. Zlatev BUL	360.0 kg
1984	K. Radschinsky GER	340.0 kg

Light Heavyweight

Not held before 1920. Weight limit 82.5 kg (181¾ lb).

1920	E. Cadine FRA	290.0 kg
1924	C. Rigoulot FRA	502.5 kg
1928	S. Nosseir EGY	355.0 kg
1932	L. Hostin FRA	365.0 kg
1936	L. Hostin FRA	372.5 kg
1948	S. Stanczyk USA	417.5 kg
1952	T. Lomakhin URS	417.5 kg
1956	T. Kono USA	447.5 kg
1960	I. Palinski POL	442.5 kg
1964	R. Plyukfelder URS	475.0 kg
1968	B. Selitski URS	485.0 kg
1972	L. Jensen NOR	507.5 kg
1976	V. Shary URS	365.0 kg
1980	Y. Vardanyan URS	400.0 kg
1984	P. Becheru ROM	355.0 kg

Middle Heavyweight

Not held before 1952. Weight limit 90 kg (198¼ lb).

1952	N. Schemansky USA	445.0 kg
1956	A. Vorobev URS	462.5 kg
1960	A. Vorobev URS	472.5 kg
1964	V. Golovanov URS	487.5 kg
1968	K. Kangasniemi FIN	517.5 kg
1972	A. Nikolov BUL	525.0 kg
1976	D. Rigert URS	382.5 kg
1980	P. Baczako HUN	377.5 kg
1984	N. Vlad ROM	392.5 kg

Heavyweight

Not held before 1980. Weight limit 100 kg (220 lb).

1980	O. Zaremba TCH	395.0 kg
1984	R. Milser FRG	385.0 kg

For results before 1972 see Super Heavyweight. Weight limit 110 kg (242½ lb)

1972	Y. Talts URS	580.0 kg
1976	Y. Zaitsev URS	385.0 kg
1980	L. Taranenko URS	422.5 kg
1984	N. Oberburger ITA	390.0 kg

Super Heavyweight

This class was described as Heavyweight until 1972. In 1896 and 1904 two separate competitions were held. (1) one-hand lift and (2) two-hand lift. Weight limits 1896–1904 open; 1920–48 over 82.5 kg (181¾ lb); 1952–68 over 90 kg (198¼ lb), from 1972 over 110 kg (242½ lb).

1896	(1) L. Elliott GBR	71.0 kg
	(2) V. Jensen DEN	111.5 kg
1900	Not held	
1904	(1) O.P. Osthoff USA	48 pts
	(2) P. Kakousis GRE	111.58 kg
1908–1912	Not held	
1920	F. Bottino ITA	270.0 kg
1924	G. Tonani ITA	517.5 kg
1928	J. Strassberger GER	372.5 kg
1932	J. Skobla TCH	380.0 kg
1936	J. Manger GER	410.0 kg
1948	J. Davis USA	452.5 kg
1952	J. Davis USA	460.0 kg
1956	P. Anderson USA	500.0 kg
1960	Y. Vlasov URS	537.5 kg
1964	L. Zhabotinski URS	572.5 kg
1968	L. Zhabotinski URS	572.5 kg
1972	V. Alekseev URS	640.0 kg
1976	V. Alekseev URS	440.0 kg
1980	S. Rakhmanov URS	440.0 kg
1984	D. Lukim AUS	412.5 kg

WRESTLING

FREESTYLE

Not held before 1904. Weight limit 1904 47.6 kg (105 lb); from 1972 48 kg (105 lb 13 oz). In 1904 this weight category was called Light Flyweight.

1904	R. Curry USA	
1908–1968	Not held	
1972	R. Dmitriev URS	
1976	K. Issaev BUL	
1980	C. Pollio ITA	
1984	R. Weaver USA	

Flyweight

Not held before 1904. Weight limit 1904 52.16 kg (115 lb); from 1948 52 kg (114 lb 10 oz). In 1904, this weight category was called 'Bantamweight'.

1904	G. Mehnert USA	
1908–1936	Not held	
1948	L. Viitala FIN	
1952	H. Gemici TUR	
1956	M. Tsalkalamanidze URS	
1960	A. Bilek TUR	
1964	Y. Yoshida JPN	
1968	S. Nakata JPN	
1972	K. Kato JPN	
1976	Y. Takada JPN	
1980	A. Beloglazov URS	
1984	S. Trstena YUG	

Bantamweight

Not held before 1904. Weight limit 1904 56.80 kg (125 lb), 1908 54 kg (119 lb), 1924–36 56 kg (123 lb 7¼ oz); from 1948 57 kg (125 lb 10½ oz). In 1904 this weight category was called 'Featherweight'.

1904	I. Nioflot USA	
1908	G. Mehnert USA	
1912–1920	Not held	
1924	K. Pihlajamaki FIN	
1928	K.E. Makinen FIN	
1932	R. Pearce USA	
1936	O. Zombori HUN	
1948	N. Akkar TUN	
1952	S. Ishii JPN	
1956	M. Dagistanli TUR	
1960	T. McCann USA	
1964	Y. Uetake JPN	
1968	Y. Uetake JPN	
1972	H. Yanagida JPN	
1976	V. Umin URS	
1980	S. Beloglazov URS	
1984	H. Tomiyama JPN	

Featherweight

1904	B. Bradshaw USA	
1908	G. Dole USA	
1912	Not held	
1920	C. Ackerley USA	
1924	R. Reed USA	
1928	A. Morrison USA	
1932	K. Pihlajamaki FI	
1936	K. Pihlajamaki FI	
1948	G. Bilge TUR	
1952	B. Sit TUR	
1956	S. Sasahara JPN	
1960	M. Dagistani TUR	
1964	O. Watanabe JPN	
1968	M. Kaneko JPN	
1972	Z. Abdulbekov UT	
1976	J.M. Yang KOR	
1980	M. Abushev URS	
1984	R. Lewis USA	

Lightweight

Not held before

65.77 kg (145 lb); 1908 66 60 kg (146 lb 13½ oz); 1920 67.50 kg (148 lb 13 oz); 1924–36 66 kg (145 lb 5 oz); 1948–60 67 kg (147 lb 11½ oz); 1964–68 70 kg (154 lb 5 oz); from 1972 68 kg (149 lb 14½ oz). *In 1904 this weight category was called 'Light Middleweight'.*

1904 O. Roehm USA
1908 G. De Relwyskow GBR
1912 Not held
1920 K. Anttila FIN
1924 R. Vis USA
1928 O. Kapp EST
1932 C. Pacome FRA
1936 K. Karpati HUN
1948 C. Atiki TUR
1952 O. Anderberg SWE
1956 E. Habibi IRN
1960 S. Wilson USA
1964 E. Valchev BUL
1968 A. Movahed Ardabili IRN
1972 D. Gable USA
1976 D. Pinigin URS
1980 S. Absaidov URS
1984 In-Tak You KOR

Welterweight

Not held before 1904. Weight limit 1904 71.67 kg (158 lb), 1924–36 72 kg (158 lb 11½ oz), 1948–60 73 kg (160 lb 15 oz), 1964–68 78 kg (171 lb 15¼ oz); from 1972 74 kg (163 lb 2¼) *In 1904 this weight category was called 'Middleweight, in 1924 it was called Light Middleweight'.*

1904 C. Erikson USA
1908–1920 Not held
1924 H. Gehri SUI
1928 A.J. Haavisto FIN
1932 J. Van Bebber USA
1936 F. Lewis USA
1948 Y. Dogu TUR
1952 W. Smith USA
1956 M. Ikeda JPN
1960 D. Blubaugh USA
1964 I. Ogan TUR
1968 M. Atalay TUR
1972 W. Wells USA
1976 J. Date JPN
1980 V. Raitchev BUL
1984 D. Schultz USA

Not held before 1908. Weight limit 1908 73 kg (161 lb), 1920 75 kg (165 lb 5½ oz); 1924–60 79 kg (174 lb 2¾ oz), 1964–68 87 kg (191 lb 12¾ oz), from 1972 82 kg (180 lb 12½ oz)

1908 S. Bacon GBR
1912 Not held
1920 E. Leino FIN
1924 F. Hagmann SUI
1928 E. Kyburz SUI
1932 I. Johansson SWE
1936 E. Poilve FRA
1948 G. Brand USA
1952 D. Tsimakuridze URS
1956 N. Stanchev BUL
1960 H. Gungor TUR
1964 P. Gardshev BUL
1968 B. Gurevich URS
1972 L. Tediashvili URS
1976 J. Peterson USA
1980 I. Abilov BUL
1984 M. Schultz USA

Light Heavyweight

Not held before 1920. Weight limit 1920 82.5 kg (181 lb 8 oz); 1924–60 87 kg (191 lb 12¾ oz), 1964–68 97 kg (213 lb 13½ oz); from 1972 90 kg (198 lb 6¾ oz).

1920 A. Larsson SWE
1924 J. Spellman USA
1928 T. Sjostedt SWE
1932 P. Mehringer USA
1936 K. Fridell SWE
1948 H. Wittenberg USA
1952 V. Palm SWE
1956 G.R. Takhti IRN
1960 A. Atli TUR
1964 A. Medved URS
1968 A. Avik TUR
1972 B. Peterson USA
1976 L. Tediashvili URS
1980 S. Oganesyan URS
1984 E. Banach USA

Heavyweight

Not held before 1904. Weight limit 1904 over 71.67 kg (158 lb); 1908 over 73 kg (161 lb), 1920 over 82.5 kg (181 lb 14 oz), 1924–60 over 87 kg (191 lb 12¾ oz), 1964–68 over 97 kg (213 lb 13½ oz); from 1972 under 100 kg (200 lb 7¼ oz)–

1904 B. Hansen USA
1908 G.C. O'Kelly GBR/IRL
1912 Not held
1920 R. Roth SUI
1924 H. Steele USA
1928 J. Richthoff SWE
1932 J. Richthoff SWE
1936 K. Palusalu EST
1948 G. Bobis HUN
1952 A. Mekokishvili URS
1956 H. Kaplan TUR
1960 W. Dietrich GER
1964 A. Ivanitski URS
1968 A. Medved URS
1972 I. Yarygin URS
1976 I. Yarygin URS
1980 I. Mate URS
1984 L. Banach USA

Super Heavyweight

Not held before 1972. Weight limit over 100 kg (220 lb 7¼ oz)

1972 A. Medved URS
1976 S. Andiev URS
1980 S. Andiev URS
1984 B. Baumgartner USA

WRESTLING GRECO-ROMAN STYLE

Light Flyweight

Not held before 1972. Weight limit under 48 kg (105 lb 13 oz)

1972 G. Berceanu ROM
1976 A. Shumakov URS
1980 Z. Ushkempirov URS
1984 V. Maenza ITA

Flyweight

Not held before 1948. Weight limit under 52 kg (114 lb 10¼ oz).

1948 P. Lombardi ITA
1952 B. Gurevich URS
1956 N. Solovyev URS
1960 D. Pirvulescu ROM
1964 T. Hanahara JPN
1968 P. Kirov BUL
1972 P. Kirov BUL
1976 V. Kostanjinov URS
1980 V. Blagidze URS
1984 A. Miyahara JPN

Bantamweight

Not held before 1924. Weight limit 1924-28 under 58 kg (128 lb), 1932-36 under 56 kg (123 lb 7½ oz); from 1948 under 57 kg (125 lb 10½ oz).

1924 E. Putsep EST
1928 K. Leucht GER
1932 J. Brendel GER
1936 M. Lorincz HUN
1948 K. Pettersen SWE
1952 I. Hodes HUN
1956 K. Vyrupaev URS
1960 O. Karavaev URS
1964 M. Ichiguchi JPN
1968 J. Varga HUN
1972 R. Kazakov URS
1976 P. Ukkola FIN
1980 S. Serikov URS
1984 P. Passarelli GER

Featherweight

Not held before 1912. Weight limit 1912-20 60 kg (132 lb 4½ oz); 1924-28 62 kg (136 lb 11 oz); 1932-36 61 kg (134 lb 7¾ oz), 1948-60 62 kg (136 lb 11 oz); 1964-68 63 kg (138 lb 14½ oz); from 1972 62 kg (136 lb 11 oz)

1912 K. Koskelo FIN
1920 O. Friman FIN
1924 K. Antila FIN
1928 V. Vali EST
1932 G. Gozzi ITA
1936 Y. Erkan TUR
1948 M. Oktav TUR
1952 Y. Punkin URS
1956 R. Makinen FIN
1960 M. Sille TUR
1964 I. Polyak HUN
1968 R. Rurura URS
1972 G. Markov BUL
1976 K. Lipien POL
1980 S. Migiakis GRE
1984 Weon-Kee Kim KOR

Lightweight

Not held before 1908. Weight limit 1908 66 6 kg (147 lb); 1912-28 67.5 kg (148 lb 13 oz); 1932-36 66 kg (145 lb 8 oz); 1948-60 67 kg (147 lb 11¾ oz); 1964-68 70 kg (154 lb 5 oz); from 1972 68 kg (149 lb 14½ oz).

1908 E. Porro ITA
1912 E. Vare FIN
1920 E. Vare FIN
1924 O. Friman FIN
1928 L. Keresztes HUN

1932 E. Malmberg SWE
1936 L. Koskela FIN
1948 G. Freij SWE
1952 S. Safin URS
1956 K. Lehtonen FIN
1960 A. Koridze URS
1964 K. Ayvaz TUR
1968 M. Munemura JPN
1972 S. Khisamutdinov URS
1976 S. Nalbandyan URS
1980 S. Rusu ROM
1984 V. Lisjak YUG

Welterweight

Not held before 1932. Weight limit 1932-36 72 kg (158 lb 11¾ oz); 1948-60 73 kg (160 lb 15 oz); 1964-68 78 kg (171 lb 15½ oz); from 1972 74 kg (163 lb 2¼ oz).

1932 I. Johansson SWE
1936 R. Svedberg SWE
1948 G. Andersson SWE
1952 M. Szilvasi HUN
1956 M. Bayrak TUR
1960 M. Bayrak TUR
1964 A. Koleslov URS
1968 R. Vesper GDR
1972 V. Macha TCH
1976 A. Bykov URS
1980 F. Kocsis HUN
1984 J. Salomaki FIN

Middleweight

Not held before 1908. Weight limit 1908 73 kg (161 lb); 1912-28 75 kg (165 lb 5¾ oz); 1932-60 79 kg (174 lb 2¾ oz); 1964-68 87 kg (191 lb 12¾ oz); from 1972 82 kg 180 lb 12½ oz). In 1912 this weight category was called 'Middleweight A'; in 1928 'Welterweight'.

1908 F. Martensson SWE
1912 C. Johansson SWE
1920 C. Westergren SWE
1924 E. Westerlund FIN
1928 V. Kokkinen FIN
1932 V. Kokkinen FIN
1936 I. Johansson SWE
1948 A. Gronberg SWE
1952 A. Gronberg SWE
1956 G. Kartozia URS
1960 D. Dobrev BUL
1964 B. Simic YUG
1968 L. Metz GDR
1972 C. Hegedus HUN
1976 M. Petkovic YUG
1980 G. Korban URS
1984 I. Draica ROM

Light Heavyweight

Not held before 1908. Weight limit 1908 [illegible] kg (205 lb). 1912-28 82.5 kg (181 lb 14 oz); 1932-60 87 kg (191 lb 12¾ oz); 1964-68 97 kg (213 lb 13¾ oz); from 1972 90 kg (198 lb 6¾ oz). In 1912 this weight category was called 'Middleweight B'; in 1928 'Middleweight'.

908 V. Weckman FIN
912 Not awarded
920 C. Johansson SWE
924 C. Westergren SWE
928 I. Mustafa EGY
932 R. Svensson SWE
936 A. Cadier SWE
948 K. E. Nilsson SWE
952 K. Grondahl FIN
956 V. Nikolaev URS
960 T. Kis TUR
964 B. Radev (Aleksandrov) BUL
968 B. Radev BUL
972 V. Rezantsev URS
976 V. Rezantsev URS
980 N. Nottny HUN
984 S. Fraser (USA)

Heavyweight

Weight limit 1896 none; 1908 over 93 kg (205 lb); 1912-28 over 82.5 kg (181 lb 14 oz); 1932-60 over 87 kg (191 lb 12¾ oz); 1964-68 over 97 kg (213 lb 13¾ oz); from 1972 under 100 kg (220 lb 7¼ oz)

1896 C. Schuhmann GER
1900-1904 Not held
1908 R. Weisz HUN
1912 Y. Saarela FIN
1920 A. Lindfors FIN
1924 H. Deglane FRA
1928 J. R. Svensson SWE
1932 C. Westergren SWE
1936 K. Palusalu EST
1948 A. Kirecci TUR
1952 Y. Kotkas URS
1956 A. Parfenov URS
1960 I. Bogdan URS
1964 I. Kozma HUN
1968 I. Kozma HUN
1972 N. Martinescu ROM
1976 N. Bolboshin URS
1980 G. Raikov BUL
1984 V. Andrei ROM

Super Heavyweight

Not held before 1972. Weight over 100 kg (220 lb 7¼ oz).

1972 A. Roshchin URS
1976 A. Kolchinski URS
1980 A. Kolchinski URS
1984 J. Blatnick USA

YACHTING

5.5 Metres

Not held before 1952.

1952 USA	5,751 pts
1956 SWE	5,527 pts
1960 USA	6,900 pts
1964 AUS	5,981 pts
1968 SWE	8.0 pts
1972-1984 Not held	

Tempest

Not held before 1972.

1972 URS	28.1 pts
1976 SWE	14.00 pts
1980-1984 Not held.	

Soling

Not held before 1972.

1972 USA	8.7 pts
1976 DEN	46.70 pts
1980 DEN	23.00 pts
1984 USA	33.70 pts

Flying Dutchman

Not held before 1960.

1960 NOR	6,774 pts
1964 NZL	6,255 pts
1968 GBR	3.0 pts
1972 GBR	22.7 pts
1976 GER	34.70 pts
1980 ESP	19.00 pts
1984 USA	19.70 pts

Dragon

Not held before 1948.

1948 NOR	4,746 pts
1952 NOR	6,130 pts
1956 SWE	5,723 pts
1960 GRE	6,733 pts
1964 DEN	5,854 pts
1968 USA	6.0 pts
1972 AUS	13.7 pts
1976-1984 Not held.	

Star

Not held before 1932.

1932 USA	46 pts
1936 GER	80 pts
1948 USA	5,828 pts
1952 ITA	7,635 pts
1956 USA	5,876 pts
1960 URS	7,619 pts
1964 BAH	5,664 pts
1968 USA	14.4 pts
1972 AUS	28.1 pts
1976 Not held.	
1980 URS	24.70 pts
1984 USA	29.70 pts

Tornado

Not held before 1976

1976 GBR	18 pts
1980 BRA	21.40 pts
1984 NZL	14.70 pts

Finn

Not held before 1924. This single-handed class was not for Finn boats until 1952; before then it was for various types

1924 L. Huybrechts BEL	2 pts
1928 S. Thorell SWE	[illegible] pts
1932 J. Lebrun FRA	87 pts
1936 D. M. J. Kagchelland HOL	163 pts
1948 P. Elvstrøm DEN	5,543 pts
1952 P. Elvstrøm DEN	8,209 pts
1956 P. Elvstrøm DEN	7,509 pts
1960 P. Elvstrøm DEN	8,171 pts
1964 W. Kuhweide GER	7,638 pts
1968 V. Mankin URS	11.7 pts
1972 S. Maury FRA	58.0 pts
1976 J. Shumann GDR	35.40 pts
1980 E. Rechardt FIN	36.70 pts
1984 R. Coutts NZL	34.70 pts

470

Not held before 1976

1976 GER	42.40 pts
1980 BRA	36.40 pts
1984 ESP	

Windsurfer

1992 Olympics: Barcelona Gets Facelift

As with any city undergoing a facelift, Barcelona has friends who think it is beautiful the way it is.

Yet, in the eager hands of its post-Franco planners, this bustling metropolis is undergoing an enormous physical renaissance.

When the Olympic Games open in Barcelona in 1992, a far-reaching municipal programme will have created or rehabilitated more than 200 parks, plazas and streets and commissioned or reconstructed more than 50 works of sculpture.

The bold aesthetic refurbishing stems from a master plan to correct decades of neglect, building speculation and even destruction of some older areas.

"In Franco's last days a master plan was developed, by architects and engineers not belonging to his political structure, and it was quite good," said Oriol Bohigas, the architect who heads Barcelona's planning corps. "What we did was to give it a more modern and democratic thrust."

The renewal programme goes back to 1979, when the new Socialist city administration, then headed by Mayor Narcis Serra (now minister of defense), took office.

The rehabilitation covers the metropolitan area.

North to south, it extends from the new Velodrome, the bicycle race track at the foot of Collcerola Mountain, to the waterfront quay known as El Moll de la Fusta.

East to west, it runs from El Fossar de la Pedrera, a park commemorating victims of Franco's forces after the Civil War, to the Via Julia, a new promenade that enchances an area of nondescript buildings hastily put up by developers.

The boulevard boasts the work of young Catalan sculptors, among them Sergi Aguilar, whose towering minimalist triangle serves as a juncture for the boulevard's two sections.

"Our idea of urbanism is not to impose a utopian plan on the city," Mr. Bohigas said. "Nor do we want the kind of monumental undertakings developed by the Franco regime. We believe in working with specific projects, real elements in actual neighbourhoods."

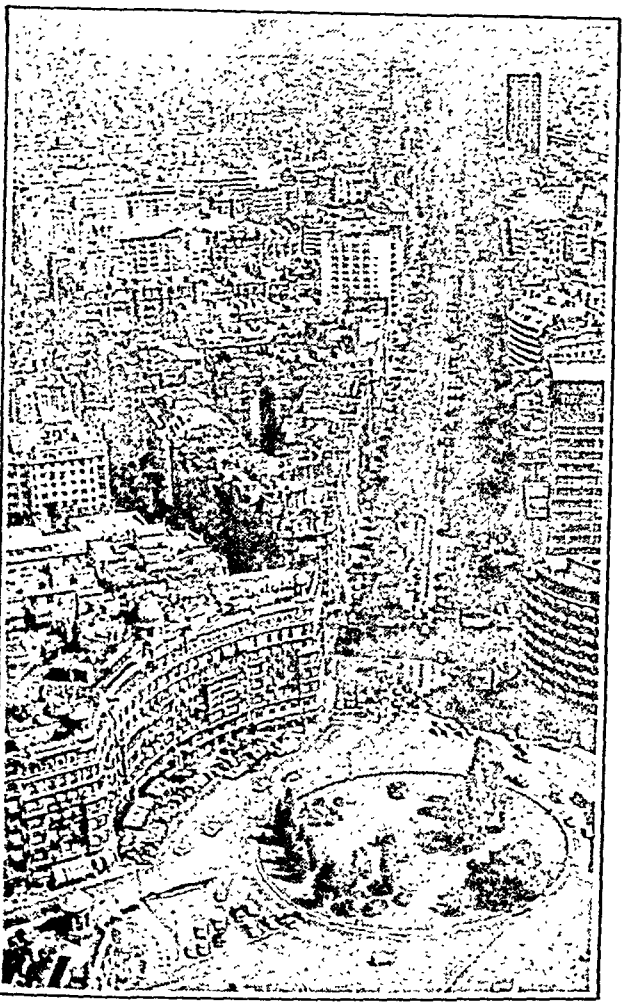
According to figures supplied by the mayor's office, the total spent for construction and improvement o urban parks and publi spaces from 1983 to 198 amounts to more than $5 million.

"In the past the budge was used to develop large scale projects that served a monuments to the forme regime," Mr. Bohigas said "Now we use it for things like gardens that are cheap by comparision."

In this sports-minded city, the planners' biggest undertaking is the complex o Olympic facilities. But they see the games as far more than athletic events.

Apart from the arena being built on Montjuich, a hill in the eastern part of the city, there will be an Olympic Village on more than 87 acres (35 hectares) near the sea. It was designed by Mr. Bohigas and Lluis Cantallops to transform the rundown area of Pueblo Nuevo and increase the city's limited access to its oceanfront.

As part of the rehabilitation, the city has been gener-



ous in commissioning not only Spanish artists but also those of other countries. Included are some well-known American sculptors, including Richard Serra, Bryan Hunt, Ellsworth Kelly, Beverly Pepper, Claes Oldenburg and Roy Lichtenstein.

Richard Meier, An American architect, has been asked to design a contemporary museum and to redo the plaza it will face as part of a revitalization of Las Ramblas, one of Barcelona's loveliest promenades.

Gae Aulenti, an Italian designer, will redo the interior of the National Palace, a kitschy relic of the 1929 International Exposition that now houses a museum of Catalan art. Last year, the famous Barcelona Pavilion, also built for the exposition — and designed by Mies van der Rohe — was reconstructed.

The projects in which contemporary sculptors are participating include the tiny Plaza de Sants, the end of a major boulevard that now boasts a semiabstract sculpture of a bicycle rider by Jorge Castillo.

At the other end of the scale are recreation areas such as the Parque de la Espana Industrial, a post-modern extravaganza designed by Luis Pena Ganchegui, a Basque architect, and built on the site of an old textile mill near the central rail-road station. A terraced composition of waterfalls includes a dragon sculpture by Andres Nagel that serves as a water chute for children; a "woods" with various kinds of trees shelters works by Anthony Caro, an English sculptor, and others.

Tribute also is being paid to the work of earlier artists. One of the grandest of these is the memorial by Joeph Llimona, a turn-of-the-century Catalan sculptor, to Dr Bartolome Robert, a former mayor of Barcelona. A symbol of Catalan unity, the sculpture was dismantled during the Franco regime. Now the city's Socialist government has restored it to full glory and placed it on the remodelled Plaza Tetuan.

The planners believe that what they call the monumentalization of Barcelona enhances the residents' sense of place by adding to the [illegible] identity of each [illegible] hood. (New Yo

LOOKING BACK ON 1987

International Events

JANUARY

1. Campus demonstrations in China for greater democracy strengthens.

3. The Liberation Tigers of Tamil Eelam announces that it has effectively taken over the civil administration in the North of Sri Lanka.

5. Beijing sudents make bonfire of official daily; Soviet Union wins the Nehru Gold Cup International Football Tournament for the third year in succession at Calicut.

15. The group of 77, comprising 127 nations, elects Guatemala to chair the Third World economic grouping in 1987.

16. The Chinese Communist Party. General Secretary, Hu Yaobang, 72, resigns. Prime Minister Zhao Ziyang succeeds, King Birendra opens the secretariat of the SAARC at Kathmandu. Mr. Abdul Absan of Bangladesh takes over as the first Secretary-General of SAARC; Ecuador President Leon Febreu Cordero kidnapped by paratroopers, but later released in exchange for the freedom of arrested rebel, Gen. Frank Vargas Pazos

21. New Austrian Government, headed by Socialist Party leader, Franz Vranitzky sworn in.

25. Africa Fund is launched in New Delhi with an opening fund of $70 m.

26. Fresh mandate for Dr. Helmut Kohl in West German elections

31. Three American Professors and Prof. Mithileshwar Singh, an Indian born US resident are kidnapped by terrorists in Beirut.

FEBRUARY

2. President Corazon Aquino wins landslide victory in a plebicite for a new constitution; CIA Chief William E. Casey steps down on account of ill-health. His deputy Robert Gates replaces him; Thriller-writer Alistair Maclean, 64, is dead; Hollywood celebrates its 100th birth-day.

5. The Soviet Union decides to resume nuclear tests following tests by the US at Nevada on February 3.

6. India and Canada sign extradition treaty.

7. Japan recognizes African National Congress.

8. Osel Iza Torres, the 27-year old Spanish boy considered to be the reincarnation of Lama Yeshe passes through New Delhi on his way to Nepal to take the place of the late Lama; Philippine Govt. Commission officially approves the new constitution.

10. The Islamic Jihad for the liberation of Palestine extends the deadline for killing the three US and one Indian hostages. Former US National Security Advisor Robert C. McFarlane (who figured prominently in President Reagan's clandestine sale of weapons to Iran) takes an overdose of sleeping pills and gets hospitalized.

11. In Pakistan, opposition leaders voice disagreement on the accord with India by the govt. on military withdrawals; India suspends mediatory efforts in Sri Lanka until the Sri Lanka govt. takes steps to diffuse the tense situation consequent to the economic blockade and military action in Tamil majority areas; Philippine's President promulgates a new constitution restoring democracy.

12. Russia offers Pakistan no-war pact with India and increased economic aid in return for a settlement of problems with Afghanistan.

14. Iraq threatens total war against Iran.

15. Sri Lankan Tamil rebel leader discloses that more than 200 Tamil militants committed suicide by swallowing ampoules of Potassium Cynaide to avoid capture by army.

17. In Vietnam, 13 veterans fired in a major shake-up of government body.

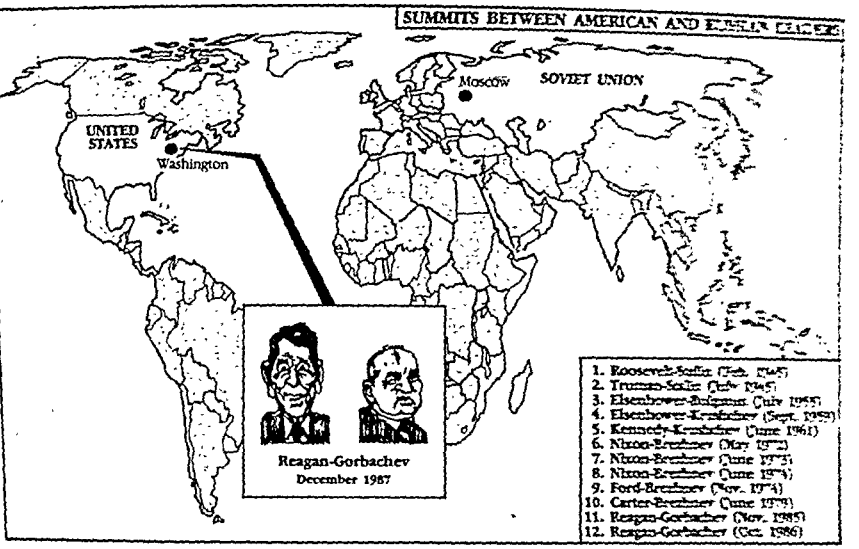
19. Sri Lankan President, Jayawardane declares peace talks with militants will be held only in the presence of India.

21. Pakistan President Gen. Zia arrives in India; USSR decides to resume nuclear tests.

23. Pakistan President Zia says in Islamabad that he would welcome India sealing Punjab border with Pakistan to check terrorists' entry to Pakistan.

24. Sri Lanka lodges a complaint regarding President Zail Singh's criticism of the Sri Lankan Government handling of the Tamil issue.

26. Reagan administration assures Congress that US military aid to Pakistan would not disturb the military balance in the sub-continent; USSR blasts nuclear device ending self-imposed ban for 18 months.



Historic Treaty: The Treaty for the elimination of all Pershing and ground-launched missiles of the US and 1500 ground-launched missiles including that of intermediate range and new SS-20 missiles of the USSR was signed on Dec. 8 at Washington between President Ronald Reagan and General Secretary Mikhail Gorbachev.

Toll of the War 7000 lives

The four-year-old ethnic war has claimed at least 7,000 lives and caused more than two billion US dolars in financial damage to Sri Lanka, the World Bank says.

The toll was about a 1,000 higher than the previously announced Government figure of the dead and the missing.

The survey was made in September. Fighting since then has claimed at least 1,540 more lives, according to Sri Lankan Government and security officials.

Mr. George West, World Bank resident epresentative in Colombo says the bank eam visited the country "to assess recon- truction needs". International agencies nd donor nations are expected to meet to liscuss financial aid for Sri Lanka.

Finance Minister Ronnie de Mel said on tate-run television, that Sri Lanka would need upto 100 billion rupees over the next three years for reconstruction and youth employment programmes.

The World Bank survey team estimated that more than 70,000 homes have been destroyed and 30,000 damaged. As a result, some 50,000 people are without permanent shelter, it said.

The damage to homes was estimated at nearly 100 million dollars. They said also said 2000 commercial buildings were destroyed and more than 3,500 damaged for a total loss of about 23 million dollars.

Among the largest war costs are the income in primary industries and said. It estimated lost to about 200 million dollars investment at 250 mi decline in agriculture and sales were put at

27. White House Chief of Staff Donald Reagan is replaced by former Republican Senator, Howard Baker.
28. Gorbachev offers separate deal to remove medium-range missiles from Europe.

MARCH

1. Pakistan's top nuclear scientist Dr. Abdel Kadar Khan discloses in an interview with a London newspaper that his country has Atom Bombs.
3. United States agrees to sell super computers to India. Hollywood star, Danny Kaye, 74, dies. Bettino Craxi Govt. in Italy resigns.
5. President Reagan admits that Iran arms deal was a mistake.
6. Senate Committee urges President Reagan to withhold military aid to Pakistan till that country gives an assurance that it is not making a nuclear bomb; A British ferry with 543 people aboard capsize's in North-sea harbour, nearly 100 die.
11. Pakistan and Afghanistan move closer on an agreement on Soviet troop withdrawal from Afghanistan.
12. US House of Representatives votes to freeze $ 40 million in aid for the contras for six nths; Soviet Union reports about its second clear explosion.

Sri Lankan Government relaxes fuel bargo on Jaffna to allow movement of swood.

India asks Sri Lanka to lift the economic ockade against Tamils in Sri Lanka.

. US naval ships move to within striking stance of Iranian missile batteries.
. President Zia says Pakistan has the capabil- to make nuclear bombs.
. Willy Brandt, 73, resigns as the chairman of est Germany's opposition Social Democrat.
. Talks between India and Pakistan to diffuse order tension begins in Islamabad.
3. US—Japanese trade war hots-up; Reagan nposes 100% import tax on Japanese electro- ic goods.
9. Sri Lanka Government wages massive scale erial artillery and naval bombardment on affna.

PRIL

1. Angolan President Jose Eduardo dos Santos rrives in India on a 3-day visit; Arab League esents PM Rajiv's remark that Pak bomb will lso be available to Arab countries.
2. According to official spokeman, upto Feb. 16, 1987 refugees numbering 128570 have arrived from Sri Lanka to India. Of this 6513 have returned. Italian President Cossiga recalls Socialist leader Bettino Craxi as Prime Minister as the five party coalition fails to form a government.
5. US decides to give most modern tanks to Pakistan; Nepal introduces work permit system to Indian and Tibetan workers; Pakistan Prime Minister Junejo says that his country has no plans to make a nuclear bomb.
10. Colombo offers 10-day ceasefire to pave way for peaceful settlement with militants; US dollar slumps again in Tokyo.
15. US spokesman speaks to Indian newsmen that on the basis of intelligence reports available with the US, Pakistan does not have any nuclear bomb.
17. Swedish State Radio reports that the arms firm Bofors won Sweden's biggest export order from India by bribing Indian politicians and officials; Militants kill 107 passengers in Sri Lanka.
18. India condemns Sri Lankan massacre.
19. In Sweden a parliamentary committee begins probe in govt's role in regard to illegal arms trade with Iran by Bofors; Colombo sacks soldiers having link with pro-Sinhala extremist organization (Janata Vimukti Peramuna).
19. In Pakistan, ethnic riot breaks out and 7 shot dead by police; Sri Lankan President issues ultimatum to Tamil militants to come for negotiations; US is reported to be trying with Soviet co-operation to stop developing countries especially India, from building ballistic missile system.
21. More than 200 persons feared killed when a bomb allegedly placed by Tamil extremists in an autorikshaw exploded at Colombo; Swedish government orders probe into the alleged payment of commission to Indian politicians and officials by Swedish arm manufacturer, Bofors.
22. Sri Lankan planes bomb Jaffna causing more than 200 casualties.
23. Swedish armaments firm Bofors tells government of India than no payment was made to anybody in arms deals. Communist Party of Soviet Union proposes to send emissaries to India to brief CPI & CPM on the resolutions adopted at the 27th party congress in Moscow.
24. Sri Lankan Government calls off peace efforts and declares all-out war on rebels.

28. Sri Lanka reacts strongly on Tamil Nadu's Rs. 4 crore aid to Sri Lankan Tamils; Australian President Kurt Waldheim denied entry to US because of evidence that he persecuted people during the second world war; BBC cancels its 21 year old Urdu and Hindi programmes.
29. Government announces relief to the extent of Rs. 70 crores in budget proposals; Canada too bans entry of Dr. Kurt Waldheim.

MAY

2. Sri Lankan President vows to recapture northern Jaffna.
5. Pakistan seeks a ten-year moratorium in its debt servicing from Aid-Pakistan Consortium.
7. In an apparent expression of displeasure, over US military aid to Pakistan, India's former Minister, N. D. Tiwari postpones his scheduled visit to US; In South Africa President P. W. Botha's National Party retains power in the polls.
8. India warns Sri Lankan government against Pak help to end the ethnic problem. Gary Hart Democratic candidate for US presidency withdraws from race following a sex scandal.
9. A Polish jet airliner bound for New York attempts an emergency landing at Warsaw but all 183 passengers die.
13. Swedish Radio accuses Bofors, Sweden's biggest arms manufacturers, of paying upto 40 million dollars to Indian middlemen for getting the order for arms supplies.
14. Sri Lankan government rules out any political solution to the ethnic issue until Sri Lanka has established a military supremacy. Fiji government ousted in bloodless coup; Army Col. Sitiveni Rabuka, 38, seizes power in Fiji.
15. Former Afghan leader Karmal tries to escape to Pakistan and lands in Afghanistan. Frontier Gandhi Badsha Ghan arrives in Bombay for treatment; Fiji's coup leader Col. Siliveni Rabuka sworn in as President.
16. Hollywood's "love goddess", Rita Hayworth, 68, dies in New York.
17. Bofors company officials in Sweden deny payment of bribes to Indian middlemen.
18. Swedish economist Gunnar Myrdal, 88, dies.
24. Supporters of ousted Prime Minister Bavadra of Fiji threaten to set up rival government.
26. Fiji Indians launch civil disobedience campaign.
27. India warns Sri Lanka against onslaught of Tamils.
28. Sri Lankan President rejects India's appeal to refrain from military action against Tamils.
29. Reports confirm that Sri Lankan army dominates in Jaffna area.
30. Soviet Defence Minister Sokolov loses position following a West-German landing a light plane in Kremlin.

JUNE

1. Lebanese Prime Minister Rashid Karami killed in helicopter crash.
7. Bangladesh decries Indian airdrop of relief supplies in Sri Lanka.
8. US decides to give more sophisticated weapons worth $ 100 million to Pakistan
9. Soviet Union proposes drastic limitation of US and Soviet nuclear weapons.
10. Sri Lanka stops raids against Tamils and offers to be ready for peace talks. Summit of seven western industrial nations at their 13th meet in Venice agrees on economic policy co-operation.
11. NATO allies give go-ahead for the dismantling of US and Soviet intermediate range nuclear missiles.
12. In Britain, Margaret Thatcher wins hands down for a history-making third term.
13. Former Fijian Prime Minister Timoci Bavadra postpones proposed visit to India.
15. India proposes to Pakistan fresh dates to reactivate Sub Commissions dealing with trade and economic co-operation.
18. Pham Hung, 74, replaces Pham Van Dong as Vietnam's Prime Minister.
20. In Haryana, Lok Dal-BJP team headed by Devilal assumes power.
22. Sri Lankan Air Force resumes bombing northern Jaffna.
23. France explodes an underground nuclear device at their Southern Pacific test site; A consortium of 14 industrialized nations and financial institutions led by World Bank pledge concessional aid of approximately Rs. 7000 crore to India.
24. In Sharjah, power struggle ends, as the ruler reaches a compromise with his brother who emerges as Deputy Ruler.
30. Sri Lanka government asks India to halt food supplies to Tamils.

JULY

1. President Chun Doo-Hwan of S[illegible] agrees to oppo[illegible]

presidential elections and sweeping democratic reforms.

2. Philippines officials hail a Swiss decision allowing them details of former President Marcos's bank account in Switzerland; The 80-year old opposition leader of Pakistan G. M. Sayyad arrives in Bombay on a visit.

3. In Moscow Festival of India begins. Pakistan opposition leader Sayyad seeks autonomy for Sind; Deposed Fijian Prime Minister Bavadra refuses to be on a Constitutional Review Committee constituted by the Governor General.

6. In Sri Lanka LTTE attacks army camps and kills 100 soldiers.

8. Pakistan Prime Minister Junejo offers India permission to inspect the Kahuta Uranium Enrichment plant, provided India too extends the same facility.

10. President Hevan of S. Korea announces that he is stepping down as president of the ruling Democratic Justice Party.

11. PLO Chairman Arafat appeals to gulf countries to hold a summit to end the gulf war.

12. Deposed Philippine President Marcos says in Honolulu that he will initiate military action against Philippines only with the approval of US.

13. A Tibet expert, John Avedon, says that China has deployed 90 nuclear missiles aimed at India.

14. China & Pakistan agree to sign defence pact.

15. Former US National Security Adviser John Poindexter discloses that President Reagan had signed in Nov. 1985 the arms for hostage swap with Iran.

17. United States warns Pakistan that all economic and military aid would be cut off unless it convinced US it was not following a nuclear weapons course.

18. Sri Lanka President Jayawardene declares that any political solution to the ethnic problem will be implemented only after a referendum is held.

21. US refuses to extradite or help in tracing Win Chadha, the controversial middleman in the Bofors deal. UN Security Council unanimously passes a resolution demanding an end to the seven-year-old Iran-Iraq war.

22. Sri Lanka okays accord with India to end ethnic conflict.

27. Liberation Tigers of Tamil Ealam turns down peace proposals initiated by India and Sri Lanka.

28. 19 people die in police firing against n protesting against the proposed agreen between India and Sri Lanka to end the et problem.

29. India and Sri Lanka sign peace accord bid to end the 5-year old ethnic troubl retired Brig. General of Pakistan Mr. Inan Haq was indicted in Philadelphia for cons ing to illegally procure nuclear steel nee by Pakistan to make the bomb.

30. Sri Lankan sailor slams rifle on Pr Minister Rajiv Gandhi, but he escapes unh Indian troops land in Sri Lanka to oversee implementation of the accord.

31. LTTE, Sri Lankan terrorist group refuse lay down arms.

AUGUST

1. 200 Iranians die in Mecca when they cl with Saudi police.

2. Iran threatens Saudi Arabia to avenge death of Iran pilgrims in Mecca. LTTE agr to abide by the Indo-Sri Lankan Pact.

3. Iran announces starting of naval m oeuvres in the strait of Hormuz and wa ships to stay away from its territorial wa

4. US House of Representatives unanimou passes a resolution to cut off military aid Pakistan unless that country provides ver able evidence that it is not producing nucl arms.

5. Sri Lankan government announces amn ty to the Tamil militants who surrender arms.

6. US decides to give only reduced develo ment assistance to India; Government of In decides to enter into a treaty with Switzerla for mutual assistance in criminal matters

9. Sri Lankan Prime Minister Premdasa presses confidence in President Jayawardan leadership.

11. LTTE says it wants guarantee for safety Tamils in Sri Lanka.

13. US President Reagan accepts that he w ultimately accountable for the illegal sale arms to Iran and the diversion of profits fr the deal to Nicaraguan rebels.

14. US President Reagan's helicopter escap collission with a Piper Archer Aircraft at San Barbara.

15. A Swedish public prosecutor says that if th government of India asks, he could initiate probe on Bofors gun deal.

World's Best Loved Bug

What has been described as the "world's best-loved bug" is reportedly facing extinction, a prospect likely to dismay auto lovers rather than entomologists. For the "bug" in question is not an insect but the celebrated Volkswagen "Beetle" the little 1500 cc car that first rolled off the assembly lines in Germany in 1935.

Tough, inexpensive and low on fuel consumption, the Beetle really came into its own during the 1960s when a growing concern for fuel conservation and the emrgence of the "small is beautiful" credo made it something of a cult in the west, particularly on college campuses and among younger people.

Its tiny size and inelegant shape, unchanged since its inception, were seen as endearing attributes rather than handicaps and the "bug" became a status symbol in reverse, identifying its owner as a member of the environment-conscious intellgentia.

Imports Flood US Airport

The flood of imports at the Kennedy airport in the U.S. is awesome, according to the Wall Street Journal.

The Kennedy Airport accounts for 125 overseas flights a day bringing in everything from Italian sports car to Indian textiles, the journal said. However, the value of this flood of imports amounts to only 11 per cent of the total.

Despite some improvement, the journal pointed out, the U.S. is still in the red on the trade front to the tune of $160 billion a year.

The dollar has declined 60 per cent in three years in relation to key currencies of the exporting countries. However, the dollar decline seems to matter only on the margin, making some foreign luxury products too expensive, the journal said.

Much of the rest of the trade deficit looks as if it could persist at almost any exchange rate.

With overseas freigt rates as low as one dollar a pound, shipment by air is no longer confined to exotic, high priced products. Much of the freight is ordinary manufactured goods. To some people, even clothing is a "perishable" item So, as fashions change exporters fly in the blouses, jackets or shirts that they figure Americans will buy

A single Boeing cargo aircraft can bring in 119,000 kg of freight.

Cars are imported because an Italian luxury car costs $100,000 in the U.S., so another $4000 for freight would make no difference.

The journal said that because Indian textile shipments have become so huge, six customs officials do nothing but process rayon goods from India. Another team does Indian cotton. In the cramped quarters of the rayon crew the second floor window is partly blocked by a basket of more than 100 unprocessed shipment folders.

17. 160 persons including 141 passengers and 5 crew die in Romulus, Michigan (US), as a plane crashes into cars on a four-lane highway.
18. Sri Lankan President Jayawardane survives a grenade attack on his life. In the attack one Minister is killed and the Prime Minister Premadasa and six other Ministers and 20 MPs get injured.
19. Swedish Chief Prosecutor Lars Ringberg tells Swedish Radio that there is sufficient grounds to suspect bribes were paid in the Bofors deal. Swedish police say they are launching a criminal inquiry into the deal.
20. Government of India decides to set up a monitoring panel to keep watch on price trend and take corrective measures.

21. Sri Lankan Parliament imposes press censorship both on local and foreign media.
21. Iraq rejects mediatory role for Syria in the gulf conflict; Zimbabwe assembly passes constitution amendment bill abolishing seats reserved for whites in the Parliament
26. South African President Botha faces tricky constitutional problem as the only coloured minister in the cabinet Allan Hondrickse resigns.
27. Over 200 fishermen are reported to have died in Bangladesh when their fishing boats sank.
28 A section of the armed forces led by a former Defence Minister try to capture power in Philippines, but loyal soldiers foil the attempt.
29. Swedish officials decide to probe Bofors company's arms deals in Europe.
30 Iraqi President Saddam Hussain pledges to defend Kuwait against any attack by Iran.

SEPTEMBER

1. In Sri Lanka LTTE takes over civil administration in Tamil areas.
2. Sri Lankan government finalises North Eastern Council for interim administration.
3. Swedish Prime Minister turns down a request of Indian opposition MPs for a meeting to discuss the Bofors issue.
7. India decides to give Sri Lanka Rs. 45 crores as aid, out of which Rs. 25 crores will be grant and Rs. 20 crores loan.
8. Philippine's President Aquino's entire cabinet submits resignation to enable her reorganize the government.
11. UN Secretary General Peres de Cuellar arrives in Iran for talks to end the gulf war. clashes between rival Tamil groups.
14. Soviet Foreign Minister Eduard Shevardnadze visits US to negotiate a treaty on intermediate range nuclear devices.
15. India decides to take steps to stop killings between Tamil groups in Sri Lanka.
18. Bofors Company President Morberg states in New Delhi that neither Prime Minister Rajiv Gandhi nor his family members had been paid any money in the gun-deal; Soviet Union and United States reach agreement on a treaty on intermediate-range nuclear missiles.
19. LTTE leader Prabhakaran accuses Indian Intelligence Agency, RAW of fomenting violence in Sri Lanka to wipe out the LTTE.
20. India warns LTTE of firm action if they did not desist from violence; Arab Foreign Ministers decide to hold a special summit of Arab League on gulf-war.
22. US attacks Iranian ship, 'Iran Ajr' killing 5 sailors and capturing 30 sailors prisoners.
23. In Fiji, the two main political parties agree to form a new government designed to retain democratic rule.
25. Col. Sitiveni Rabuka, Fijian Military Strongman, stages a second coup and assumes power.
26. LTTE leader Thileepan dies in Sri Lanka after a 12-day fast.
28. In Fiji Col. Rabuka scraps constitution; LTTE and Government of India agree on a solution and LTTE calls off agitation.
29. Col. Rabuka declares Fiji a Republic and announces a military council headed by him to govern the country.

OCTOBER

1. Sweden bans trade with South Africa.
2. In Sri Lanka, a member of the Indian force killed by unidentified men who opened fire and escaped in a vehicle to the compound of Sri Lankan military co-ordination office.
3. In Lhasa, capital of Tibet, 6 persons die as police opens fire on demonstrators against Chinese occupation of Tibet.
4. Sri Lankan President Jayawardane orders Gen. Depender Singh, GOC-in-C Southern Command and Commander of Indian Forces in Sri Lanka either to bring peace as per Indo-Sri Lankan Agreement or withdraw.
5. In Sri Lanka 12 LTTE men, including two top leaders detained by government commit suicide by swallowing cyanide pills, to prevent their being taken to Colombo for interrogation.

6. In Tibet's capital, Lhasa, people march chanting anti-Chinese slogans demanding independence, and police break the rally.
7. Dalai Lama calls for civil stir to liberate Tibet from China.
9. United States helicopters sink three Iranian gun-boats about 25 km south-west of Iran's Farsi Island.
11. Queen Elizabeth II rejects proposal for changes in the Fijian constitution.
12. Japan announces a Rs. 270 crore fresh concessional official development assistance loan to India to help India fight drought.
13. Sri Lankan Prime Minister Premadasa in a speech at United Nations accuses India of nurturing terrorists.
17. The Commonwealth formally announces ouster of Fiji from membership.
18. Indian peace keeping force in Sri Lanka enters Jaffna town overcoming stiff resistance of LTTE.
19. United States claim it has razed an Iranian non-producing oil platform 125 miles east of Bahrain.
20. Stock-prices crash in United States and investors lose an estimated 500 billion dollars.
21. Moscow offers massive aid of over $4 billion to Pakistan.
21. Soviet Union passes a new law allowing citizens to bring charges against government officials responsible for illegal actions.
24. U.S. Secretary of State Shultz says he is willing to sign a treaty with the Soviet Union to ban intermediate-range nuclear weapons without a superpower summit.
25. Indian forces free Jaffna from LTTE control. China seeks people's okay to split party and government.
29. U.S. and USSR reach an agreement on an agenda for a summit of the two heads of governments later this year; In Sri Lanka, peace-keeping Indian force in complete control of Jaffna. Officials say that more than 200 Indian militarymen and 800 LTTE men died in the operation.
31. U.S. President Reagan and Soviet Foreign Minister Shevardnadze announce super power summit in Washington in December 1987 and another in Moscow in 1988.

NOVEMBER

1. Sri Lankan Minister Athanayake escapes unhurt as a bomb explodes at his residence in Kandy; China's top leader, Deng Xiaoping, steps aside to pave the way for younger leaders.
2. Third SAARC Summit opens in Kathmandu. King Birendra of Nepal is elected Chairman of SAARC; In China Zhao Ziyang is named head of the Communist Party, Mr. Xiaoping to continue as Chairman of Central Military Commission.
3. US dollar tumbles to record low following share market collapse.
5. Informal talks on Sri Lankan power devolution begin in New Delhi between J. R. Jayavardane and Rajiv Gandhi in New Delhi.
5. Iranian gun-boat hits US tanker.
7. Tunisian President Habib Bourgiba is deposed and Prime Minister Zine El Abidine Ben Ali takes over as President.
9. Australia wins the World Cricket Cup beating England by seven runs in Calcutta. 50 people die and over 100 get injured in Colombo as a bomb rips through a crowded bus stand.
10. Twelve people die in Dhaka police firing against protestors demanding resignation of President Ershad.
11. The Arab-Summit in Amman adopts a resolution giving Arab states right to individually restore relation with Egypt severed in 1979 following the Camp David Agreement with Israel.
12. Sri Lankan Parliament adopts bills for provincial councils.
13. K. Natwar Singh, Minister of State for External Affairs assures Rajya Sabha that a protest will be lodged with Sri Lanka for its PM's criticism of India
15. In Bangladesh, riot spreads to more areas as opposition led protests for Ershad's removal gain momentum
17. Gunmen raid Sri Lankan Minister, Vincent Dias' home; Iraqi planes bomb nuclear plant in Iran.
18. In China Vice Premier Li Peng is nominated Prime Minister in place of Zhao Ziyang.
19. Sri Lankan Tamil militants free 18 Indian soldiers held prisoners in Chavakacheri.
20. India declares 48 hour cease-fire in Sri Lanka.
23. Bangladesh government arrests BBC correspondent Atans Samad in Dhal
24. Soviet Union announces Rs. 11
for India.
25. India accepts in principle the
to establish a space research centre

nuclear power plant.
26. Philippines typhoon kills 200 people.
29. Bangladesh President declares emergency; A South-Korean plane with 115 people on board is reported missing over Burma.

DECEMBER

1. James Baldwin, 63, American black novelist dies in France Dr. Najibullah elected President of Afghanistan under a new constitution.

3. Cosmonaut Yuri Romanenko, 43, Commander of the Orbiting Platform Mir breaks the 300-day space endurance record also held by a Soviet.

4. The Kampuchean resistance leader Prince Norodom Sihanouk and the Vietnamese-backed Prime Minister Mr. Hun Sen signs a four-point agreement aimed at accelerating efforts to end Kampuchea's civil war.

5. Former Governor-General, Ratu Sir Penaia Ganilau appointed first President of the new Fiji Republic. Ratu Sir Kamisese Mara becomes the Prime Minister; Barak Sope, 36, nominated Prime Minister—designate of the South Pacific nation Vanautu.

6. President Ershad of Bangladesh dissolves Parliament amid a persistent opposition campaign to topple his government.

8. Reagan and Gorbachev sign historic treaty in Washington to scrap intermediate nuclear weapons.

20. Garry Kasparov retains world chess championship beating Anatoly Karpov in Seville, Spain.

21. About 2000 people die in ship-tanker smash off Manila, Philipines.

National Events

JANUARY

1. Tamil Nadu slips into partial prohibition. Jammu & Kashmir Government raises retirement age to 58.

2. Dr. Harekrishna Mehtab, former Chief Minister of Orissa, dies.

3. Karnataka Zilla Parishad elections give a jolt to the ruling Janata Party and boosts the morale of the Cong(I).

6. Indira loyalists launch National Socialist Congress; Music Director Jaidev, dies.

7. India wins test-series against Sri Lanka (2-0). Kapil Dev attains 300 Test wickets in the 3rd and final test against Sri Lanka at Cuttack.

8. An International Conference to commemorate the 75th Anniversary of the African National Congress opens in New Delhi.

10. Indian Yacht 'Trishna', captained by Lt. Col. K. S. Rao of Indian Army Engineers returns to Bombay after an around the world 30,000 nautical miles odyssey Sept. 28, '85 onwards.

13. The Prime Minister of Denmark, Mr. Poul Schluter visits India.

13. India undertakes offshore oil exploration and extraction in Vietnam under an agreement signed between the two countries.

17. Prime Minister lays the foundation-stone for the Naval Academy at Ezhimala, near Cannanore in Keerala.

18. Holland lifts Indira Gandhi Gold Cup in the inaugural hockey tournament in New Delhi with Spain in the second and India in the third positions.

20. Foreign Secretary, Mr. A. P. Venkateshwaran resigns.

21. K. P. S. Menon (Jr.), Ambassador to Beijing, appointed Foreign Secretary.

23. Army formation moved to border along the western front as a response to Pakistan's deployment of army units.

'Prostitute' redefined to include males, under the Immoral Traffic (Prevention) Act.

24. Cabinet Minister V. P. Singh shifted from Finance to Defence; 'Goodbye Green Summer' of the USSR gets the Golden Peacock award at the 11th International Film Festival at New Delhi; The Babri Masjit Action Committee withdraws its call to Muslims to boycott the Republic Day celebrations.

26. Gen. A. S. Vaidya gets Padma Vibhushan *posthumously; Neerja Mishra wins post*humous award of Ashoka Chakra.

27. P. T. Usha nominated the Asian Athlete of 1986 by the US Sports Academy (USSA).

28. A South Delhi road named Olof Palme Marg, after the late Swedish Prime Minister who was conferred posthumously the 1985 Jawaharlal Nehru Award for International Understanding.

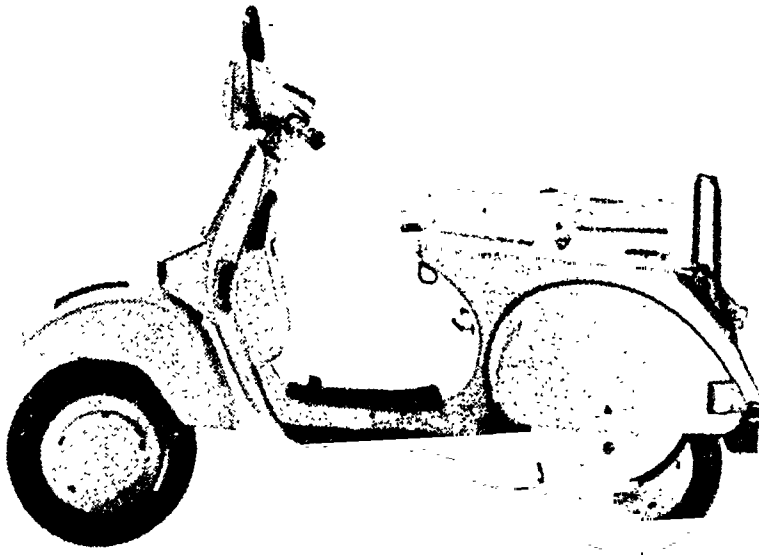
30. DMK President M. Karunanidhi and five others sentenced to 10 weeks rigorous imprisonment for burning the Constitution.

FEBRUARY

2. Y. K. Alagh made member of the Planning Commission.

3. The Gorkha National Liberation Front (GNLF) suspends agitation for two months;

'Vespa' Years Closing in Italy



The 'Wasp' is about to give way to the 'Thing' on the streets of Italy's cities, but things will never be the same for millions of Vespa fans.

The Vespa, or 'Wasp' — the motorised scooter which brought mobility to four generations of Italians and symbolised the country's postwar renaisance — will be officially pensioned off after an announcement by the manufacturer, Mr. Umberto Agnelli, chaiman of the Piaggio Company and younger brother of Fiat chief, Mr. Giovanni Agnelli.

Piaggio's new model of a modern motor-scooter, La Cosa, or 'Thing', will take the Vespa's place on Italy's roads and side-streets, but not its place in Italy's affections. Together with Martini, Ferrari and the tiny Fiat 500, the Vespa came to represent a certain style and raciness in the gradual restoration of prosperity to Italy's war-ravaged cities.

Audery Hepburn and Gregory Peck dated by Vespa in the film 'Roman Holiday' in the 1950s, and Anita Ekburg and Marcello Mastroianni later did the same in 'La Dolce Vita'.

Foreign visitors in the 1960s were charmed by the Vespa, and officially instructed to beware of young people riding scotters who might use them for a lightning raid to snatch their handbags.

Later, in the politicised 1970s, the 200 cc. Vespone model came to be associated with right-wing or neo-fascist supporters, while left-wingers drove the smaller (50 cc) Vespino model.

With so much history at stake, the ending of the 'Vespa years' has caused much soul-searching and breast-beating.

"Was it really necessary to jettison an old friend? Wouldn't it have been better to have kept what had become virtually an Italian ambassador, with ten million sold around the world in the last 40 years," one newspaper bewailed.

The 'Wasp' — which got its name from the buzz of its engine and the shape of its body — was born in 1946 in the ruins of Piaggio factory which had produced engines for bomber aircraft.

Prime Minister of Finland, Dr. Mauno Koivisto visits India.

4. National Anthem singing made compulsory in Kerala Schools.

6. Outlawed Tripura National Volunteers issue 'Quit Tripura' order to all Indian citizens.

7. Prime Minister Rajiv Gandhi declares in Darjeeling that a separate Gorkhaland is out of question.

8. National Democratic Party decides to quit the UDF in Kerala in protest against the Chief Minister's decision to postpone the implementation of 15% reservation for economically backward people.

9. The Sikh High Priests declare Surjit Singh Barnala, Punjab Chief Minister, a 'Tankhaiya', Bundh in Goa in protest against the sole official language status granted to Konkani, M. R. Srinivasan appointed chairman of Atomic Energy Commission and Secretary, Atomic Energy Department (effective from March 1), P. K. Iyengar, Director of BAARC, seeks premature retirement in protest against Srinivasan's appointment.

10. Punjab Chief Minister Barnala refuses to appear before Akal Takht, who had declared him 'Tankhaiya'.

11. Punjab Chief Minister ex-communicated by the Sikh Head Priests for refusal to accede to their demand to step down from the Presidentship of the Akali Dal and dismantle the party

12. In the biggest day-light robbery in the country, terrorists in police uniform loots Rs 5.70 crores from Punjab National Bank, Ludhiana; Former Police Commissioner, Jaspal Singh elected Mayor of Baroda defeating Cong.(I) candidate.

13. GNLF decides to boycott Assembly poll in W. Bengal. The Central Government decides to set up a committee of secretaries to select diplomats for appointment.

14. Punjab Chief Minister S S. Barnala claims that his government has absolute majority. Union Information Minister, Ajit Panja says 'Breakfast TV' will be introduced very soon; Satwant Singh, who was sentenced to death for killing Indira Gandhi, appeals to the Supreme Court.

15. RSS leader Bhaurao Deoras calls upon Hindus and Sikhs not to indulge in recriminations if a solution to Punjab problem is to be found; Punjab Chief Minister Surjit Singh Barnala sacks a dissident minister, Harbbajen Singh Sandhu and expels 11 party-men.

16. Opposition leaders after discussion w Prime Minister, Rajiv Gandhi, decides to vi Punjab to appeal for peace; Mizoram goes polls; Election Commission issues notificati for elections to Jammu & Kashmir, W. Beng and Kerala assemblies on March 23; K. P. Menon Jr. takes charge as new Foreign Secr ary; Malayala Manorama, the largest circulat daily in India launches its Trivandrum Editi

17. Central Government suggests to States give more freedom to the District le officers. Defence Minister V. P. Singh indu India's first SSK (Submarine to Submari Killer) into the Navy; Opposition parties c mand equitable allocation of time on Radio TV for election campaign.

20. A massive gathering of Sikhs in Longow repudiates the ex-communication of Punj Chief Minister, Barnala by Head Priests; Ar nachal Pradesh becomes the 24th State India; Lokdal splits over leadership issue.

22. Foreign students at the International St dents House in Bombay refuses to under AIDS test; Congress and National Conferen in J&K reach accord on sharing seats election.

23. Justice Ranganath Mishra Commissi appointed to look into the disturbances f lowing Mrs. Indira Gandhi's assassination dicts police and clears Congress Party of a involvement.

24. In Kerala, Film Star Prem Nazir joi Congress Party.

25. The Railway Minister announces introdu tion of 8 superfast trains from April 1; Govt. India defends President's remarks on S Lankan Tamils.

MARCH

1. Rajiv Gandhi presents a budget with record deficit of Rs. 5688 crore; An all pa convention supports Punjab Chief Minist Barnala and his Government in their fig against terrorism.

2. Dutch Prime Minister, R. F. M. Lubbe visits New Delhi; Prime Minister Rajiv Gand answers Lok Sabha that President is n sidelined; Government sets up a panel head by P. N. Haksar to review the working of t three Akademies.

3. Supreme Court in a judgement rules th pension to government employees depen on service record.

4. The air intelligence unit seizes at Bomb

airport gold & foreign exchange worth Rs. 1.80 crores—the largest from any of the country's airports in a single operation.

5. In Bombay, a gang bombs police lock up and kills an industrialist R. D. Pradhan, former Union Home Secretary appointed Governor of Arunachal Pradesh.

6. India rejects Chinese claim on Arunachal Pradesh.

7. Sunil Gavaskar scores his 10,000 runs in cricket, at Ahmedabad and becomes the first batsman to make 10,000 runs. Police and security personnel enter Golden Temple parikarma when unknown persons fired at police from inside the temple.

9. Vibha Mishra refutes charges against B. V. Karanth in a Bhopal court. Railways introduce facilities to lodge FIRs about any offence during the journey in the train itself.

10. Amritsar DSP discloses that new army recruits are being lured into terrorism in Punjab.

13. The Opposition in Lok Sabha stays away during the reply to the budget debate. Speaker refuses to allow a privilege motion on President's letter to Prime Minister; Minister of State for External Affairs says in the Lok Sabha that India has no intention to make a nuclear bomb.

14. Police alleges that several terrorists fled the golden temple, probably on the advice of Panthi Committee; In a train sabotage near Trichy 22 persns lose lives and 80 get injured; Terrorists kill ruling Akali MLA Amarjit Singh in Ludhiana.

16. In Tamil Nadu Chief Minister M. G. Ramachandran drops two Ministers—K. A. Krishnaswami and A. G. P. Jagadeeshar.

18. Opposition members in Lok Sabha again walk out on being refused discussion on President's letter to Prime Minister; Rajan Jeitley takes over as Managing Director of Air India.

19. Farmers' agitation turns violent in Gujarat and five die in police firing; In a daring robbery, 27 men posing as CBI sleuths "raid" a jewellery shop in Bombay and decamp with jewellery valued at Rs. 30 lakhs.

20. Rajyasabha Chairman also bars discussion on President's letter to Prime Minister.

21. A Naxalite group in Tamil Nadu is held responsible for the train sabotage near Trichy; India calls its High Commissioner in Sri Lanka for urgent consultations.

23. Nearly 60 million voters in Jammu & Kashmir, West Bengal and Kerala go to polls.

24. India's first new generation rocket, ASLV, plunges within two minutes and 40 seconds of its launching.

25. In the March 23 elections in Kerala and West Bengal Marxist-led alliance gets majority. In Jammu & Kashmir, National Conference Congress alliance wins.

26. E. K. Nayanar and Farooq Abdulla are sworn in as Chief Ministers of Kerala & Jammu Kashmir respectively.

27. Union Law Minister Ashok Sen resigns following the debacle of the Congress(I) in W. Bengal assembly elections.

30. The Opposition in Lok Sabha gives notice of a resolution for removal of Speaker; Armed persons free Punjab terrorist Harjinder Singh Jinda from police custody.

APRIL

1. Bank lending rates reduced; Interst rates on short-term deposits go up.

2. Substantial adhoc relief announced for public sector executives; In Kerala, 14 more Ministers sworn in, bringing the number of ministers to 19; Indian Standards Institute becomes Bureau of Indian Standards, as it receives statutory status under Indian Standards Act 1986

3. Prime Minister, Rajiv Gandhi announces that a sitting Supreme Court Judge will probe the Fairfax issue; In Kerala, the government stays all revenue recovery proceedings. A Rs. 588 crore plan for cleaning Krishna River involving Maharashtra, Karnataka, Andhra Pradesh is announced.

4. Tamil Nadu Assembly sentences S Balasubramanian, Editor of, Anandavikatan, Tamil weekly to undergo rigorous imprisonment for 3 months for refusing to apologise for publishing a cartoon on legislators, In Kerala, Forest Minister M. P. Veerendrakumar resigns as his party MLAs express disagreement over his choice as Minister.

5. V. P. Singh, former Finance Minister justifies hiring of the US detective agency, Fairfax.

6. Tamil Nadu Assembly releases Editor of Anandavikatan, who was imprisoned for publishing a cartoon; Justice Thakkar to head Fairfax probe.

7. Supreme Court holds that all wives including Muslim women whose husb[illegible]

Seventh Odyssey To Icy Continent

The seventh Indian scientific expedition to Antarctica left from Goa in the Swedish ice-breaker "Thuleland" on November 26, 1987.

The 90-member expedition is be led by Dr. R. Sengupta of the National Institute of Oceanography, and a member of the first Indian expedition Besides scientists and experts from various fields, the team includes personnel of the three wings of the armed forces.

The expedition will take up airborn magnetic survey of the Gruber massif and the low snow-bound areas between Schirmacher and Wohlthat ranges. The idea is to delineate subglacial geology of the region to assess its mineral potential.

The expedition will continue geological studies in Humbolt massif of Whohlthat mountains covering about 1,000 sq. km. This area has revealed interesting deposits of minerals and ilmenite core having 98 per cent purity. These investigations are of primary importance enabling India to claim a resource share in .the mineral regime of the icy continent.

Job Seekers 3.05 Crore

The number of job-seekers on the live register of employment exchanges as on February 28, 1987 was 305 13 lakhs The number of medical and engineering graduates including postgraduates who were on the live register of employment exchanges as on June 30, 1986 was 0.26 and 0 39 lakh respectively

There are 25,613 medical graduates and postgraduates on the live registers of employment exchanges as June 30, 1986

The Minister of State for Health Saroj Khaparde told the Lok Sabha that no target had been fixed in the Sixth Plan for providing jobs to jobless doctors

According to the Sixth Plan, the Government's policy was not to increase the number of medical colleges or intake capacities.

The Minister said a number of steps had been taken to discourage the migration of medical manpower to foreign countries. Restrictions had been placed on medical graduates going abroad for higher education and training for which such facilities were available in India. Service conditions of doctors particularly, those in rural areas were being improved.

There were 38,980 engineering graduates registered with the employment exchanges on June 30, 1986. However, all these graduates were not necessarily unemployed.

A record numbers of 7,67,015 passports have been issued from various zonal offices in the country during the first nine months of 1987.

Bombay tops the list with 1,72,007 passports, followed by Delhi with 60,092, Madras 56,032, Ahmedabad 52,585, Cochin 52,032 and Hyderabad 45,726, External affairs Dy. Minister Mr. Natwar Singh informed Dr. M.H. Kidwai in Lok Sabha.

entitled to maintenance, in a case filed by Saira Banu of Kerala.

8. USSR denies charges that the new US embassy in Moscow is bugged; Karnataka Government decides to introduce worker participation in the management of public sector undertakings.

10. Kerala High Court directs State Government to prevent felling of trees in Agaly; CPI drops Mohit Sen from Party's National Council

12. V. P. Singh resigns as Defence Minister; K. C. Pant appointed in his place.

15. No-confidence motion against Lok Sabha Speaker, Balram Jhakhar rejected by voice-vote.

16. Mr. Arun Singh, Minister of State for Defence, states in the Lok Sabha that the enquiry ordered by a former Defence Minister V. P. Singh was in order but the premature publicity was uncalled for; Hamza Kunju, former Deputy Speaker of Kerala, is suspended from Muslim League for indiscipline; Madras High Court upholds expulsion of 10 DMK MLAs for burning excerpts of the Constitution.

18. Mr. K. Sudhakaran appointed Advocate General of Kerala.

20. Kerala Govt. seeks centre's aid to construct check dams across rivers to preserve water; Defence Minister K. C. Pant rejects opposition demand for probe into the allegation of Swiss Radio on Defence deals.

20. V. P. Singh calls upon government to proceed with the probe ordered by him into the Bofors deal to its logical conclusion.

21. Mr. Arun Singh discloses in Rajya Sabha that the Swedish government has agreed to investigate the allegation made by Swedish Radio about kickbacks in arms deal; Defence Minister K. C. Pant holds discussion with Chinese leaders in Beijing on border issue.

23. Supreme Court in a judgement confers Hindu widows absolute ownership of property under Hindu Succession Act 1956.

24. According to figures released by Union Ministry, Gujarat leads in communal riots.

25. Non-Congress Chief Ministers meeting in New Delhi decides to work for a viable national alternative to Congress.

26. In Karnataka, Chief Minister, Hegde drops four ministers and inducts 24 more to the ministry.

27. India calls on Sri Lanka to stop bombing of Tamil areas and negotiate with the militants; Defence Minister K. C. Pant says in Lok Sabha that Pakistan's nuclear weapon programme is forcing India to review its option; Tamil Nadu announces Rs. 4 crore aid to Sri Lankan Tamils.

29. India confirms test launch of surface to air missiles.

MAY

1. 'Tabarana Katha', a Kannada film by Girish Kasaravalli bags the best feature film award for '86. Malayalam Director G. Aravindan wins the award for the best Director (Film: Oridath).

2. Naxalites guns down former MLA Bir Bahadur Singh in Bihar.

3. President Giani Zail Singh makes it dear that he has no intention to dismiss Rajiv Government.

4. Ghanikahn Choudhary, Minister for Programme Implementation resigns following indictment by Public Accounts Committee on leasing out Railway land by him.

5. The Punjab Vidhan Sabha unseats 11 more Akal Takht sponsored group legislators, bringing the total unseated so far to 22, under Anti-Defection Bill.

6. Prime Minister Rajiv Gandhi replies to President Giani Zail Singh that details of arms deal cannot be made available to him.

7. INSAT-1B successfully completes 1000 days of continuous operations in space.

8. Women representatives of seven SAARC countries meet in Bangalore, Pondicherry Assembly passes resolution seeking full statehood; P.M. Rajiv Gandhi challenges V.P. Singh to reveal all facts regarding Fairfax issue.

10. After a visit to China, CPI(M) Gen. Secretary,E.M.S. Namboodiripad says China would respond if India wanted to have talks

11. President's rule imposed in Pubjab; Lok Sabha passes Goa Statehood Bill unanimously.

12. In Pubjab, govt. extends DGP Rebeiro,s term of office by one year, Britain's HMS Hermes becomes Indian Navy's second aircraft carrier named INS Viraat.

13. In Pubjab, police arrests a former member of Barnala cabinet for terrorist activities

14. In Punjab police arrests an MLA and many others; Sukhoninder Singh Sandhu believed to be involved in the killing of Gen. A S Vaidya is arrested in New Jersey, U.S.A

15. FBI arrests in US Sukhmir Singh Sandhu, main suspect in AS Vaidya's murder case

17. In Pubjab police busts two terrorist gangs and arrests several terrorists.

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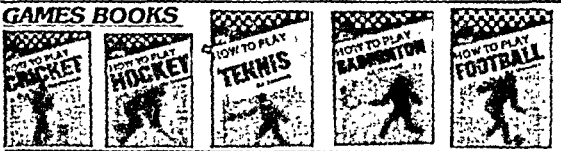

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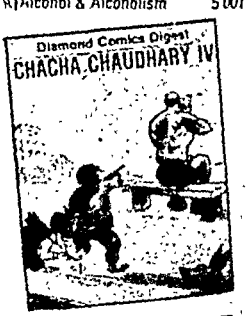

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19. Communal troubles breake out in Meerut and 15 die in clashes.
20. Government of India decides to allow Indian team to play Israel in the Davis Cup Tennis quarter finals.
21. Governemnt of UP starts consultations to handover control of riot-rocked Meerut to the army; Former PM Morarji Desai says that the President cannot dismiss the PM so long as the PM enjoys a majority in Parliament; Bihar emerges champions in the 25th National Inter-State athletic championship, Kerala becomes runner-up.
22. Minister of state for external affairs Eduardo Faleiro leaves for Australia and Newzealand to discuss developments in Fuji.
23. Punjab police DG Rebeiro says that police will enter religious places to flush out terrorists.
24. In Andhra Pradesh government makes medicare in government hospitals available only on payment.
25. In Meerut the death toll in communal violence rises to 111.
26. VP Singh says he will depose before the Thakkar-Natarajan commission only if the hearings take place in open court.
27. Government of India announces termination of all agreements with Fairfax group.
28. UP Government sacks the provincial armed constabulary chief as death toll in the communal riots rises to 129.
29. Former Prime Minister Charan Singh (85) dies.
30. 41 killed in Bihar in caste violence. Goa becomes 25th state of India, Daman and Diu to remain as union territories.

JUNE

3. Sri Lanka halts Indian relief convoy.
4. A Swedish Government enquiry finds that Bofors paid commission to middlemen for concluding arms purchase agreement with India.
9. Demonstration in Goa against promotion of 'elitist terrorism'.
11. Government of India decides to send team to Switzerland to obtain information on secret funds held by Indians.
12. Prime Minister Rajiv Gandhi rules out immediate transfer of Chandigarh to Punjab.
13. Congress (I) nominates R. Venkataraman as their candidate for Presidency.
14. In Delhi, terrorists mow down 12 persons including in a birthday party; Prime Minister Rajiv Gandhi rules out termination of Rs.1700 crore Bofors gun deal.
15. India and Sri Lanka reach an agreement on the procedure for despatch of relief supplies; R. Venkataraman files nomination papers for presidential election; Govt. of India announces enhanced pay scales to college and university teachers.
18. In Haryana elections, Lok dal (B) BJP alliance wins landslide majority.
19. Bahuguna elected president of Lok Dal (B).
20. In Haryana, Lok Dal–BJP team headed by Devilal assumes power; Ornithologist Dr. Salim Ali, 91, dies in Bombay; In Darjeeling, a 13-day bandh called by GNLF begins with arson and looting.
22. President Zail Singh declares he has no intention to run for presidency for a second term.
23. West Bengal Chief Minister Jyothi Basu orders crack down on Gorkha militants in riot-torn Darjeeling; BJP announces its members will abstain from voting in the presidential election because of disagreement with other parties.
24. Indian Relief Ship "Island Pride" unloads food and medicines in Jaffna; West Bengal Govt. promulgates ordinance to deal with the GNLF agitators.
25. A nn-confidence motion against Maharashtra Speaker Shakar Rao Jagatap fails; In a pre-dawn swoop on the Golden Temple in Amritsar, police detains 130 persons and recovers weapons and explosive literature.
26. Badsha Khan, the Frontier Gandhi is discharged from hospital in Bombay after 43 days' treatment; Central government decides to handle Gorkhaland issue directly.
27. VP Singh suggests that the Bofors deal should be enquired into by a Parliamentary Committee.
28. GNLF calls off the Bandh before completion of the period.

JULY

1. Mathur Singh who is involved in several murde
in a
2.
M

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On To Internal Debt Trap

If the trend in market borrowings by the government continues, India might get into the situation of an internal debt trap by 1992-93, according to a Reserve Bank of India study.

The study, which comes to this conclusion on the basis of calculations taking into account present trends, says "a point of no return may be reached by 1992-93 when net market borrowings may not be sufficient to pay even interest on market borrowings."

The study points out that the gross aggregate internal liabilities (GAIL) rose from Rs.10.134 crores in 1968-69 to Rs.1,38,213 crores in 1986-87. According to the budget for 1987-88 they are likely to go upto Rs.161,029 crores.

The annual compound growth rate of GAIL works out to 15.6 per cent upto 1986-87 and 15.7 per cent upto 1987-88.

If dues receivable from others, that it states, public enterprises etc., to whom the central government has issued loans, are excluded, the net aggregate internal liabilities (NAIL), rose from Rs.1,662 crores in 1968-87 with an underlying compound growth rate of 22.9 per cent.

Taking into account the budget estimates for 1987-88, NAIL would be Rs.82,267 crores and the compound growth rate since 1968-69 would be 22.8 per cent.

One point that emerges from the study is that NAIL as a proportion of GAIL has shown a rising trend from 16.4 per cent in 1968-69 to 49.0 per cent in 1986-87 and 51.1 per cent in 1987-88.

Net interest payments (NIP), as compared to gross interest payments (GIP) which includes interest received, has also been rising at a fast pace since 1978-79. The annual compound growth rate of NIP is 52.1 per cent for the period 1978-79 to 1985-86.

As a result NIP as a proportion of revenue receipts, tax receipts and revenue expenditure has been going up from 1.4 per cent 1.8 per cent and 1.4 per cent to 9.8 per cent. 13.5 per cent and 8.2 per cent respectively in 1978-79.

National Debt Rs.12,150 Crore

The total internal and external debt of the Government is estimated at Rs.12,150 crore by the end March, 1983, Minister of State for Finance Janardhan Poojary told in Rajya Sabha in November.

India's foreign debt outstanding as of March 1987 is Rs.31,919 crore.

The minister of state for finance B.K. Gadhvi told Lok Sabha in November, 1987 that the figure was Rs.26,638 crore and Rs.24,004 crore in 1986 and 1985 respectively.

He said the foreign exchange reserves had shown a decline of Rs.755 crore from April to October as compared to a decline of Rs.880 crore in the corresponding period in the previous year.

Mr. Gadhvi said the debt servicing ratio and the overall external debt position of the country were within manageable limits.

The outstanding balance on November 1 this year under EFF to IMF to be repaid on April 29, 1994 was SDR 2962.50 million.

The outstanding balance on November 1, 1987on trust fund loan account wasSDR 318.92 million equivalent of Rs.526.53 crore at the current rupee-SDR exchange rate of Rs.161.51 per SDR which is to be repaid by the August 14, 1990.

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- A Rs.40 crores Drugs Plant to manufacture life saving drugs such as 'Penicillin'.
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5. In U.P. 97 people die in heat wave.
6. Prime Minister Rajiv Gandhi announces in a joint press conference addressed by Norwegian Prime Minister and himself that Swedish Audit Report on Bofors arms sale to India does not contradict anything he said earlier.
7. Punjab terrorists butcher 76 bus passengers in Punjab and Haryana.
9. 50 die as train derails in Andhra Pradesh.
11. Government prepares master plan to cover the entire northern region embracing 7 states and 2 union territories against terrorist activities.
12. Leaders of political parties and many social, religious and commercial organisations criticise Sikh High Priests for not condemning the killing of bus passengers.
13. Over 90 percent of the 4695 electors vote in the Presidential election of the country.
14. Union Minister for Tourism Mufti Mohammed quits the Cabinet.
15. Congress President Rajiv Gandhi expels VC Shukla, Arif Mohammed Khan and Arun Nehru from Congress for anti-party activities.
17. VP Singh, former Finance Minister, announces resignation from Congress; R. Venkataraman gets a massive majority in the Presidential election, with 18 of the 25 states and over two-thirds of the total number of electors backing him.
18. Amitab Bachhan resigns his Lok Sabha membership; Arun Singh, Union Minister of state for defence, resigns from the cabinet.
19. Congress President Rajiv Gandhi expels V.P. Singh from Congress and orders probe into Ajitab Bachhan's property abroad.
21. President-elect R. Venkataraman says in an interview with the news magazine *The Week* that he is not sure whether the President has the power to grant permission to prosecute the Prime Minister.
22. The Congress Working Committee ratifies expulsion of Arun Nehru, VP Singh, V.C. Shukla and Arift Mohammed Khan from the Congress; In talks with Subhash Gheising Prime Minister rules out formation of a separate state for Gorkhas; Government of India impounds Win Chadha's passport; Central Minister for Public Enterprises KK Tiwari resigns from the cabinet, reportedly at the instance of Prime Minister, for attacks on President Zail Singh.
24. President Zail Singh in his farewel broadcast to the nation tells that basic values are above individuals.
25. R. Venkataraman assumes office of the President of India; Prime Minister Gandhi rules out a mid-term poll.
28. HKL Bhagat, Minister for Parliamentary Affairs states that the terms of reference of the proposed parliamentary committee to go into the Bofors deal is fair enough.
29. Speaker suspends CPM member Ajoy Biswas from the Lok Sabha for misbehaviour and the opposition decides to boycott Lok Sabha.
30. In Delhi, terrorists kill two BJP leaders — Hans Raj Sethi and Sudershan Munjilal; The government revokes suspension of CPM member Ajoy Biswas.
31. Major Opposition parties decide to boycott the Rajya Sabha till government conceded their demand for discussion on the Bofors issue.

AUGUST

1. CPI decides to launch agitation for mid-term poll.
2. Geet Sethi retains the World Amateur Billiards title. Vishwanathan Anand becomes the first Asian to win the World Junior Chess championship.
3. Supreme court revokes its order postponing all India Entrance Examinations for MBBS, BDS & Postgraduate courses in medicine and directs Central Board of Secondary Education to conduct these exams in June 1988.
4. College and University teachers begin nation-wide strike to get increased emoluments at par with central universities; Government files criminal case against Win Chadha.
5. A meeting between ruling Congress (I) and opposition over the Bofors panel ends up without reaching any agreement.
6. Lok Sabha adopts a motion seeking appointment of Parliamentary Committee to go into Bofors deal as the opposition walks out.
7. Janata MP Madhu Dentavade urges government to bring out a white-paper on defence deals since 1980 and major FERA violations.
9. Prime Minister Rajiv Gandhi inaugurates the 45th anniversary of Quit India Movement in Bombay.
10. United Akali Dal decides to withdraw from the Sikh scene leaving militants to run the affairs.
11. Assam Chief Minister Prafulla Kumar

Mahanta declares he will boycott the special session of parliament to mark the 40 years of Independence.

13. Addressing the commemorative session of Parliament marking 40th Anniversary of independence, President Venkataraman exhorts people to repulse anti-national forces.

14. In Bihar 35 people die in boat mishaps as flood situation worsens; Central Government announces ad-hoc grant of Rs.55.40 crore to states for drought relief.

14. At a special investure ceremony at Rashtrapati Bhavan, President R. Venkataraman confers the Bharat Ratna Award on Frontier Gandhi Khan Abdul Ghaffer Khan. Frontier Gandhi's son Wali Khan receives the award on behalf of his father who is in a coma for the past several days.

15. Addressing Independence day celebrations Prime Minister Rajiv Gandhi vows to stamp out terrorism.

17. Members of Parliament write to Swedish Prosecutor to investigate the charges of 'kickbacks' in the Bofors gun deal; Both the ruling party and the opposition agree on Shankar Dayal Sharma as the candidate for Vice-President.

18. S.D. Sharma files nomination paper for Vice-Presidential election; Government of India announces interim relief to workers in over 200 public sector enterprises.

19. In Hyderabad Naxalites kill ten policemen in a forest area; In Punjab, terrorists kill six relatives of Union Home Minister Buta Singh.

20. Government of India decides to set up a monitoring panel to keep watch on price trend and take corrective measures.

21. S.D. Sharma is elected unopposed as the Vice-President of India.

24. Supreme Court rejects the review petition filed by CPWD against the court's decision in January 1986 ordering equal wages for equal work for the master roll workers.

26. Renowned Oriya writer and poet Sachidanand Routary wins Jnanpith Award for 1987. Government of India seeks fresh clarifications from Bofors.

27. Sri Jayandra Saraswati Swami of Kanchi Kamakoti Peetom who left the Ashram four days ago, is spotted in Kailasa Ashram at Talecauvery in Coorg District; Congress (I) suspends 5 MPs – Ram Dhan, S. Malik, M. Singh, R.K. Rai and R.P. Patel from the party for anti-party acts; Speaker Balram Jhakar appoints B. Shankaranand as Chairman of the Parliamentary Committee to enquire into the Bofors gun deal.

28. Lok Sabha passes the 58th Constitution Amendment Bill aimed at reserving some seats for tribals in Nagaland, Meghalaya, Mizoram and Arunachal Pradesh.

29. Congress (I) suspends 5 MLAs in UP for anti-party acts; Nagi Reddy selected for Dadasaheb Phalke Award for 1986.

30. Police arrests in Delhi Terrorists Jinda and Bawa, allegedly involved in the murder of Gen. A.S. Vaidya and others.

SEPTEMBER

1. Directorate of Revenue Intelligence carry-out raids in all Indian Express offices.

3. Dr. Shankar Dayal Sharma sworn in as the eighth Vice President of India.

4. University and College teachers call-off their strike following government's acceptance of their major demand for slashing the number of scales; In Rajasthan, Roop Kanwar, 18 year old girl, commits sati by burning herself in her husband's funeral pyre

5. President Venkataraman presents awards to 164 teachers.

7. In a reshuffle of AICC, Congress President Rajiv Gandhi appoints A.K. Antony and Janardhan Poojari as PCC Chiefs of Kerala and Karantaka respectively and a new set of General Secretaries

8. In Punjab, four head priests openly support militants saying that the militants are fighting for liberation

11. Government of India announces [illegible] measures to conserve Rs.[illegible] crores [illegible] ing drought

12 Prime Minister Rajiv Gandhi expresses serious concern over Pakistan's continuing complicity in providing arms and training for terrorists

12 Government of India suspends loan recovery from drought affected areas.

15 In Rajasthan, the state Government bans any public function to commemorate Sati performed by the 18-year old Rajput girl, Roop Kanwar

17 Ten persons die when police [illegible] Tamil Nadu's S. Arcot District as the agitation by Vanniyar Comm[illegible] lent.

19. Government of India an[illegible] of taxes to collect Rs.550 [illegible] drought

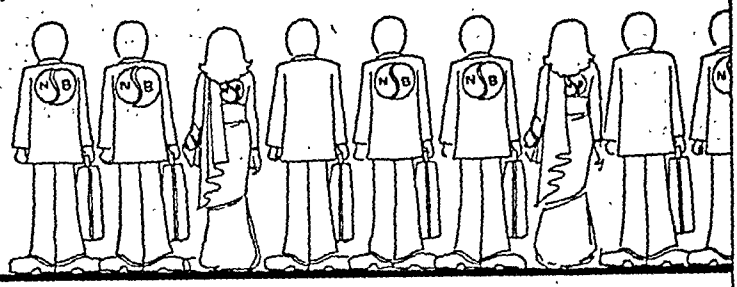
20. Mufti Mohammed Syed, former Union Minister, suspended from Congress for anti-party activities.
21. India decides to send three teams of IPS Officers to UK and US for training.
23. Security forces raid Golden Temple in Amritsar and arrests 24 terrorists.
25. Swiss authorities refuse residence permit to Ajitabh Bachan.
29. The Panthic Committee which virtually controls the Golden Temple announces that it does not recognise Prof. Darshan Singh as Chief of Akal Takht and calls for sarbat khalsa to elect a new chief.
30. Prime Minister Rajiv Gandhi inaugurates Reliance Cup Cricket Match in New Delhi.

OCTOBER

1. Government of Rajasthan promulgates an Ordinance, according to which anyone who abets 'Sati' will be awarded death penalty.
2. V.P. Singh launches his organisation 'Jan Morcha', along with his associates.
4. George Fernandes files a petition in a Swedish court seeking directive to Swedish government to reveal names of those who received kickbacks in Bofors gun deal with India.
4. India enters Davis Cup final when Ramesh Krishnan beat Wally Masur (8–6, 6–4, 6–4) in Sydney.
5. Bombay High Court in a judgement says Newspapers do not come under MRTP Act.
9. India decides to buy medium-range Super Computers for weather forecasting and agricultural research.
10. India suspends trade with Fiji; Defence Ministry names Vice Adm. Jayant G. Nadkarni as the next Chief of the Naval Staff. He will take over on Nov. 30, 1987.
8. India asks the Dalai Lama not to indulge in poltical activities from Indian soil.
12. Gurudas Kamat appointed President of Indian Youth Congress.
16. United Akali Dal and Akali Dal (L) elect their own nominees as President of SGPC.
17. Reserve Bank of India tightens credit policy and raises liquidity ratio of Banks to 10% from 9.5%.
19. Communist Party of India welcomes Congress to join the national compaign against communalism.
20. Police conducts mass arrests in Punjab to prevent holding Sarbat Khalsa.
21. Government of India announces it will introduce legislation to curb capitation fee in Medical and Engineering Colleges; Police swoop on Golden Temple in Amritsar and take into custody 400 persons to block holding of Sarbat Khalsa.
25. 22 political parties moot reforms on poll funding.
27. Vijay Merchant (77), former test player, dies in Bombay following a heart-attack.
29. The unified Akali Dal in Punjab decides to launch a civil disobedience stir from January 26, 1988 if its grievances are not redressed by then.
31. Former Chief Justice of Supreme Court Mr. Y.V. Chandrachud says in Bangalore that out of court works for Judges needlessly lend a political flavour to their functioning and harm the institution.

NOVEMBER

1. Passengers and crew of Indian Airliner 737 Boeing Aircraft escape unhurt as the plane forcelands in Bangalore.
3. Ten people die in Andhra Pradesh as cyclone sweeps the Coromandel coast.
4. Congress working committee decries sati incidents in Rajasthan; In Bombay's KEM Hospital three more test-tube babies are born.
4. Prime Minister Rajiv Gandhi tells Tamil militants in Sri Lanka to lay down arms for ceasefire; India signs terrorism treaty at the SAARC meeting in Khatmandu.
5. India loses to England in the World-cup Cricket in Bombay by 35 runs.
6. Opposition parties in Parliament and Rajya Sabha walkout over Sri Lanka issue.
7. Bharat Jan Vigyan Jatha – Science Yatra – started from five centres ends in Bhopal.
9. Lok Sabha okays extension of President's rule in Punjab.
10. Opposition MPs demand ceasefire in Sri Lanka.
11. India's first Pvt. midi-steel plant costing Rs.200 crores is to come up in Bhandara, sponsored by a non-resident Indian.
12. A Division Bench of Bombay High Court holds that under the newspaper rule followed in England, a newspaper or journal cannot be compelled to disclose its source.
14. Government orders [illegible] over of [illegible] building in Delhi for [illegible] of lease [illegible] New Delhi.
15. Sino-Indian [illegible]
16. Opposition [illegible]



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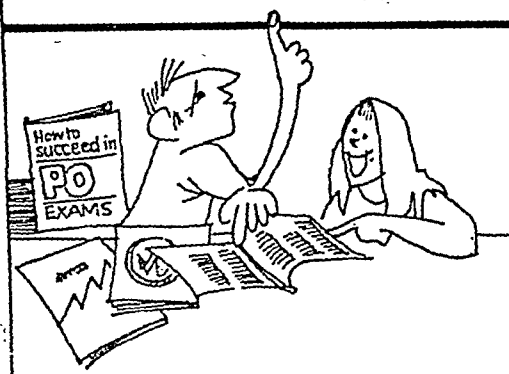

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action of taking over Express building in Delhi.

17. Darshan Singh, acting Akal Takht Chief announces his resignation.

20. Congress gets absolute majority in Nagaland elections.

21. The Festival of USSR begins in New Delhi; Dilip Vengsarkar named India's captain for the first two cricket tests and one-day internationals against the West Indies.

DECEMBER

1. CBI charge-sheets Carbide officials.

2. Former Punjab Chief Minister, Prakash Singh Badal released from the Jabalpur Central jail.

5. Sweden signs secret memorandum with India relinquishing the right to suspend weapons export, if India becomes involved in an armed conflict.

6. MiG-29, re-christened as 'Baaz', inducted into the Indian Air Force.

9. Thakkar-Natarajan Commission report finds grave administrative lapses by the Finance minister in engaging Fairfax Group Inc. of the US to to investigate the economic offences by certain companies.

11. Rajiv Government defeats the firstever no-confidence motion.

12. The U.S. Senate reverses panel decision linking India and Pakistan on nuclear proliferation issue.

15. Veteran Communist leader P. Ramamurthi, 80, dead.

17. Bhopal court orders the Union Carbide to pay Rs.350 crores as interim relief to 1984 gas victims.

20. The 2nd National Games opens in Trivandrum.

24. M.G. Ramachandran, 70, Tamil Nadu's actor – Chief Minister dies; N. Nedumchezhiyan the new C.M.

HIGHLIGHTS OF SCIENCE 1987

1. For the first time in almost 400 years, astronomers observed a supernova burst—caused by the explosion of a star 30 times heavier than the Sun.

2. The Government of India approved a Rs. 25 crore project for building the world's largest radio-telescope at metre wavelengths, construction of which is to be completed near Pune by 1992. It will consist of 34 steerable parabolic dish antennas, each of 45 meters diameter.

3. For the first time organic matter was found on a comet new to the Solar System. The discovery was made on Comet Wilson, which is believed to be on its first and only visit around the Sun. This new result has given some credence to those who theorize that life on Earth arose from organic chemicals brought to it by extra-Solar comets.

4. Two bright arc-shaped objects surrounding two elliptical galaxies in 110-degree sections of circles, and located at about five billion light years from the Earth, were discovered as the biggest objects in the universe known to astronomers so far.

5. Traditionally four fundamental forces are known in Physics. These are gravity, electromagnetism, strong nuclear force, and weak nuclear force. Now, however, evidence has mounted for a fifth force that has been found to act over distances between 10 and 1000 meters. It has a strength much weaker than gravity and it depends on the composition of the matter experiencing the force.

6. Superconductivity research continued to make important breakthroughs througout the year. The phenomenon has now been repeatedly observed at temperatures higher than 77 degrees Kelvin, which is the boiling point of liquid nitrogen. The availability of superconductors above the liquid nitrogen temperature is of big economic advantage and technological applications are expected to follow soon.

7. Based on samples obtained from depths of some 3,000 metres, geologists claimed that the Florida peninsula was once a part of Africa and not North America, to which it is now attached.

8. The first example of an underwater crater caused by the impact of a meteorite was discovered near Nova Scotia in Canada. The diameter of the colliding object is estimated to be between 2 and 3 kilometers and the impact took place about 50 million years ago.

9. An American expedition to Mount K2, currently considered to be the world[illegible]

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highest peak, claimed that its survey revealed the height of K2 to be 8,890 metres, versus the 8,615 metres considered standard at present. The new claim, if proven true, would make K2 42 metres taller than Mount Everest.

10. Using radar as a tool for "seeing" under the soil, palaeontologists discovered the buried remains of a new gigantic dinosaur, at a length of more than 40 metres. This is the world's largest animal, living or extinct, discovered so far.

11. New detailed studies by climatologists have revealed that in recent decades precipitation has increased in the higher latitudes, decreased in the lower latitudes, and remained about the same in the equatorial region. Some workers have claimed that these results are in agreement with predictions based on the greenhouse effect—a phenomenon caused by the excessive buildup of carbon dioxide in the atmosphere due to human activities.

12. Wheat, rice, maize, serghum, barley, sugarcane and other similar food plants are all members of the grass family. Until now it has not been possible to exploit the new techniques of genetic engineering in grasses due to the non-availability of a technique for introducing foreign genes into the plants. But new agricultural research seems to have overcome this difficulty with the help of a bacterium called *Agrobacterium*.

13. Biologists studying the development of animals from the embryonic to the adult stage have long sought to find substances—called morphogens—that help in orderly growth. Scientists in the U.S. have now apparently found one such morphogen. This is a chemical called retinoic acid and it regulates the growth of limbs in chicks.

14. The world's first laboratory offering to identify the genetic relationship between individuals opened for business in U.K. Such "genetic fingerprinting", which can be done with minute samples of blood, hair, skin, semen, or tissue, will be of immense benefit to police, courts, animal breeders, immigration officials and others.

15. Scientists in Britain invented a biopsy needle which is so fine that the body instantly reseals the puncture when the needle is removed. At the same time the ultrasonic scanner used to track the needle does not "lose" it because of its thinness.

16. Medical scientists have been trying for several years to develop a multipurpose vaccine that can alone provide protection against several diseases. Earlier expectations were that such a vaccine might be created using the vaccinia virus—which is used in making smallpox vaccine. However, new research has indicated that the bacterium known as BCG is much more promising.

17. A 48-year old South African woman became the first surrogate mother of her own grand childeren when she gave birth to her daughter's test-tube triplets.

18. A computerized device claimed to be the world's first instanteneous translator of speech was displayed by the firm British Telecom.

19. A Japanese company introduced the prototypes of a 16 million bit "dynamic random access memory (DRAM)" computer chip, thus considerably improving over the existing DRAM chips whose capacity is limited to 4 million bits of information.

20. Soviet cosmonaut Yuri Romanenko broke the 237-day space endurance record set in 1984.

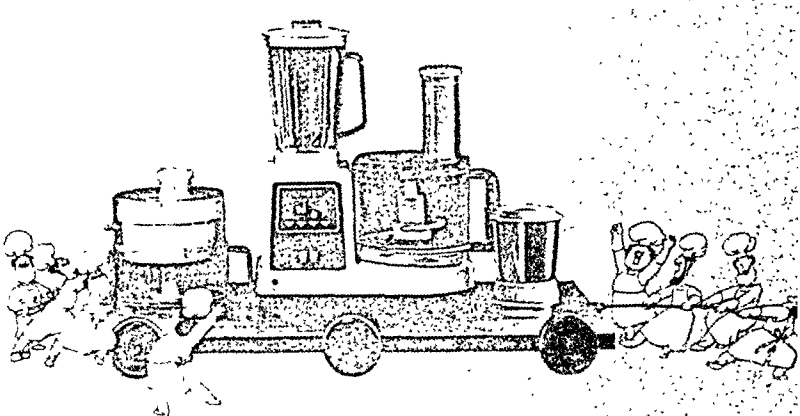
21. Engineers in the U.S. successfully tested the prototype of a new hybrid between a helicopter and a jet plane. While it is able to take off and land like a helicopter, it is expected to fly at 960 km per hour.

22. With about four hundred markers, biologists succeeded in drawing a rough map of the entire set of human genes. This will help in better understanding of genetic diseases.

Space Record

Cosmonaut Yuri Romanenko, the 43-year-old commander of the orbiting platform Mir, on December 3, 1987 broke the 300-day space endurance record also held by a Soviet.

Mr. Viktor Blagov, one of the officials in charge of the mission, told Tass after talking to Romanenko during a regular communication session that "his spirits are high and the work is proceeding as planned. However, he admitted he is missing his home, near ones and friends very much".



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Central Scientific Instruments Organisation Chandigarh (CSIO)

National Geophysical Research Institute, Hyderabad (NEGRI)

National Institute of Oceanography, Dona Paula, Goa (NIO)

Chemical Sciences:

National Chemical Laboratory, Pune (NCL)

Central Electrochemical Research Institute, Karaikudi (CECRI)

Central Salt & Marine Chemicals Research Institute, Bhavnagar (CSMCRI)

Regional Research Laboratory, Hyderabad (RRL, Hyderabad)

Regional Research Laboratory, Jorhat (RRL, Jorhat)

Indian Institute of Petroleum, Dehra Dun (IIP)

Central Fuel Research Institute, Jealgora (CFRI)

Biological Sciences:

Central Food Technological Research Institute, Mysore (CFTRI)

Central Drug Research Institute, Lucknow (CDRI)

Central Leather Research Institute, Madras (CLRI)

National Botanical Research Institute, Lucknow (NBRI)

Indian Institute of Chemical Biology, Calcutta (IICB)

Central Institute of Medicinal & Aromatic Plants, Lucknow (CIMAP)

Industrial Toxicology Research Centre, Lucknow (ITRC)

Centre for Cellular and Molecular Biology, Hyderabad (CCMB)

Regional Research Laboratory, Jammu (RRL, Jammu)

Institute of Microbial Technology, Chandigarh (IMT)

CSIR Complex, Palampur

Tocklai Experimental Station, Jorhat

Engineering Sciences:

Central Building Research Institute, Roorkee (CBRI)

Central Road Research Institute, New Delhi (CRRI)

Central Glass & Ceramic Research Institute, Calcutta (CGCRI)

National Metallurgical Laboratory, Jamshedpur (NML)

Central Mining Research Station, Dhanbad (CMRS)

Central Mechanical Engineering Research Institute, Durgapur (CMERI)

National Environmental Engineering Research Institute (NEERI)

National Aeronautical Laboratory, Bangalore (NAL)

Structural Engineering Research Centre, Madras (SERC, Madras)

Structural Engineering Research Centre, Roorkee (SERC, Roorkee)

Regional Research Laboratory, Bhubaneswar (RRL, Bhubanewswar)

Regional Research Laboratory, Trivandrum (RRL, Trivandrum)

Regional Research Laboratory, Bhopal (RRL, Bhopal)

Electrical Research & Development Association, Vadodara.

Information Science:

National Institute of Science, Technology & Development Studies, New Delhi (NISTADS)

Indian National Scientific Documentation Centre, New Delhi (INSDOC)

Publications & Information Directorate, New Delhi (PID)

Industrial Research Associations:

Tea Research Association at Tocklai, Jorhat (TESTRA)

Electrical Research & Development Association, Vadodara (ERDA)

WHO IS WHO IN INDIA

President of India

Dr. Rajendra Prasad	: 1950-1962
Dr. Sarvepalli Radhakrishnan	: 1962-1967
Dr. Zakir Husain	: 1967-1969
Varahagiri Venkata Giri	: 1969-1969 (Acting)
Justice Mohammed Hidayatullah	: 1969-1969 (Acting)
Varahagiri Venkata Giri	: 1969-1974
Fakhruddin Ali Ahmed	: 1974-1977
B.D. Jatti	: 1977-1977 (Acting)
Neelam Sanjiva Reddy	: 1977-1982
Giani Zail Singh	: 1982-1987
R. Venkataraman	: 1987-Till date

Vice-Presidents of India

Dr. Sarvepalli Radhakrishan	: 1952-1962
Dr. Zakir Husain	: 1962-1967
Varahagiri Venkata Giri	: 1967-1969
Gopal Swarup Pathak	: 1969-1974
B.D. Jatti	: 1974-1979
Mohammed Hidayatullah	: 1979-1984
R. Venkataraman	: 1984-1987
Dr. S.D. Sharma	: 1987-Till date.

Prime Ministers of India

Jawaharlal Nehru	: 1947-1964
Gulzari Lal Nanda	: 1964-1964 (Acting)
Lal Bahadur Shastri	: 1964-1966
Gulzari Lal Nanda	: 1966-1966 (Acting)
Indira Gandhi	: 1966-1977
Morarji Desai	: 1977-1979
Charan Singh	: 1979-1980
Indira Gandhi	: 1980-1984
Rajiv Gandhi	: 1984-Till date

Chief Justices of India

Harilal J. Kania	: 1950-1951
M. Patanjali Sastri	: 1951-1954
Mehar Chand Mahajan	: 1954-1954
B.K. Mukherjea	: 1954-1956
S.R. Das	: 1956-1959
Bhuvaneshwar Prasad Sinha	: 1959-1964
P.B. Gajendragadkar	: 1964-1966
A.K. Sarkar	: 1966-1966
K. Subba Rao	: 1966-1967
K.N. Wanchoo	: 1967-1968
M. Hidayatullah	: 1968-1970
J.C. Shah	: 1970-1971
S.M. Sikri	: 1971-1973
A.N. Ray	: 1973-1977
M.H. Chandrachud	: 1977-1978
P.N. Bhagwati	: 1978-1985

R.S. Pathak 1985-Till date

Chief Election Commissioners of India

Sukumar Sen	: 1950-1958
K.V.K. Sundaram	: 1958-1967
S.P. Sen Verma	: 1967-1972
Dr. Nagendra Singh	: 1972-1973
T. Swaminathan	: 1973-1977
S.L. Shakdhar	: 1977-1982
R.K. Trivedi	: 1982-1985
R.V.S. Peri Sastri	: 1985-Till date

Chiefs of Army Staff

General Maharaj Rajendra Sinhji	: 1955-1955
General S.M. Srinagesh	: 1955-1957
General K.S. Thimayya	: 1957-1961
General P.N. Thapar	: 1961-1962
General J.N. Chaudhuri	: 1962-1966
General P.K. Kumaramangalam	: 1966-1969
General S.H.F.J. Manekshaw	: 1969-1972
Field Marshal S.H.F.J. Manekshaw	: 1972-1973
General G.G. Bewoor	: 1973-1975
General T.N. Raina	: 1975-1978
General O.P. Malhotra	: 1978-1981
General K.V. Krishna Rao	: 1981-1983
General A.S. Vaidya	: 1983-1986
General K. Sundarjee	: 1986-Till date

(General Sir Roy Bucher (1948-49), General K.M. Kariappa (1949-53) and General Maharaj Rajendra Sinhji (1953-55) served as commanders-in-chief of Indian Army. General Kariappa was conferred the rank of Field Marshal in 1986).

Chiefs of Naval Staff

Vice-Admiral R.D. Katari	: 1958-1962
Vice-Admiral B.S. Soman	: 1962-1966
Admiral A.K. Chatterjee	: 1966-1970
Admiral S.M. Nanda	: 1970-1973
Admiral S.N. Kohli	: 1973-1976
Admiral J.L. Cursetji	: 1976-1979
Admiral R.L. Pereira	: 1979-1982
Admiral O.S. Dawson	: 1982-1984
Admiral R.H. Tahiliani	: 1984-1987
Admiral J.G. Nadkarni	: 1987-Till date

Chiefs of Air Staff

Air Marshal Sir Thomas Emhirst	: 1947-1950
Air Marshal Sir Ronald Lvelaw Chapnam	: 1950-1951
Air Marshal Sir Gerald Gibbs	: 1951-1954
Air Marshal S. Mukherjee	: 1954-1960
Air Marshal A.M. Engineer	: 1960-1964
Air Chief Marshal Arjan Singh	: 1964-1969
Air Chief Marshal P.C. Lal	: 1969-1973
Air Chief Marshal O.P. Mehra	: 1973-1976
Air Chief Marshal H. Moolgavkar	: 1976-1978
Air Chief Marshal I.H. Latif	: 1978-1981
Air Chief Marshal Dilbagh Singh	: 1981-1984

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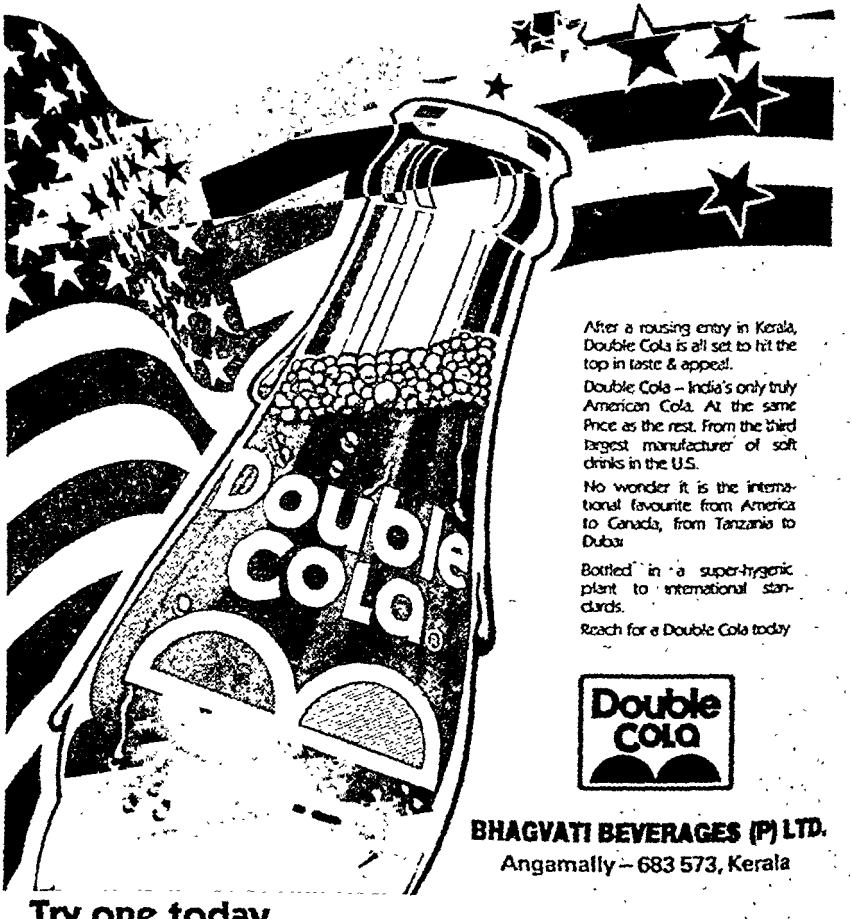

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N.D. Tiwari: Finance and Commerce.
Buta Singh: Home Affairs.
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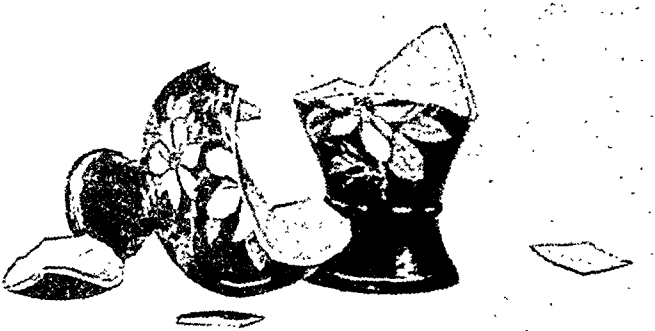
The reason why Mrs Kumar wasn't heart-broken – even when her favourite vase broke!



Mrs Kumar was not in the least bit perturbed when her favourite vase broke!

For she knew that she could put her vase back together with 'EPOXITE' – an excellent adhesive that is 4 times faster and 3 times stronger than other conventional adhesives!

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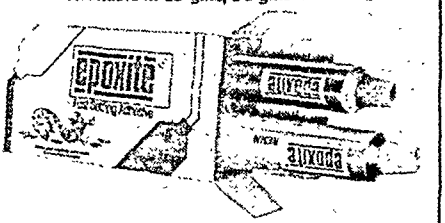

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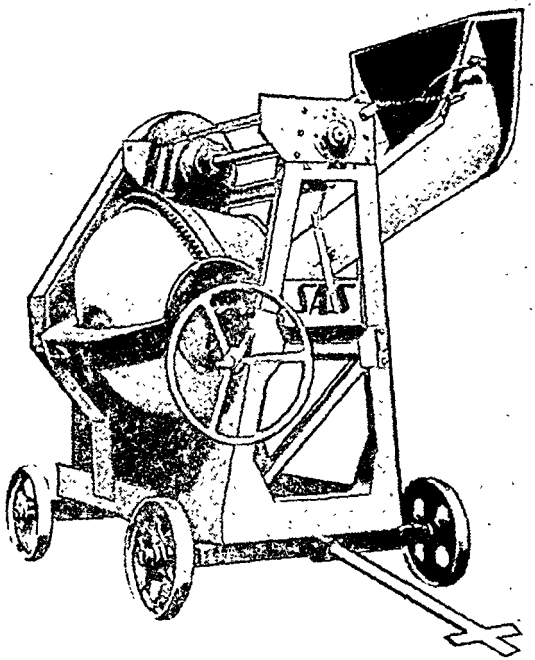

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Little wonder then that this lavish splendour should yield an abundance of natural resources. Some of them like sandalwood uniquely Karnataka's own.

From mines.... Karnataka has the distinction of being the only gold producing state in India. Mining about 2000 kg of the precious metal each year from the Kolar & Hutti Gold Mines. In iron ore, Karnataka ranks fifth in production. The total reserves of nearly 1,000 million tonnes cater to domestic requirements and pull in considerable export earnings as well.

Karnataka also has appreciable deposits of copper, manganese, titanium, vanadium and tungsten. And is the only state besides Orissa that produces the strategic mineral chromite.

and quarries..... Superior quality China clay is found all over Karnataka, as the other kinds of clay.

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Karnataka is rich in magnetite, dolomite, quartz, kyanite and sillimanite – used extensively in the iron and steel industry. Karntaka granite is world famous and is much in demand for the construction industry at home and abroad.

to forests..... Forests are the greatest natural reserves of natural resources. And Karnataka's evergreen canopy ensures a plentiful supply of timbers and soft woods.

Particularly a noteworthy is sandalwood, Karnataka's "fragrant gold" which is highly prized the world over.

Teak – the king of timbers – remains unchallenged for strength and beauty. Karnataka's teak cultivation covers over 12 lakh hectares and is economically one of the state's most important products. Rosewood from Karnataka is another foreign exchange earner. It is used to make distinctively fine furniture with the most exquisite veneers.

and plantations..... Karnataka is the foremost coffee-producing state in India. With a total of 30,395 estates covering 123,993 hectares of the species Arabica and Robusta. Karnataka's Virginia flue-cured tobacco is also much in demand, for its high quality and low nicotine content. Rubber planting has also been taken up on a massive scale.

Karnataka can justifiably be proud of its natural produce. It is foremost among the states in the production of arecanut and pepper. Second in cardamom and coconut. Fourth in cashew and fifth in fruit production.

Karnataka is an unending vista of scenic beauty which led a French historian to write some 150 years ago "The plains of Karnataka afford the most beautiful habitation that nature has to offer mankind upon this earth".

Come, see and experience it for yourself. Its magic will enchant you forever.

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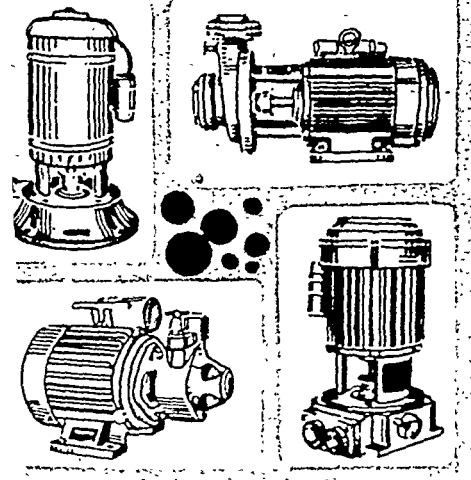

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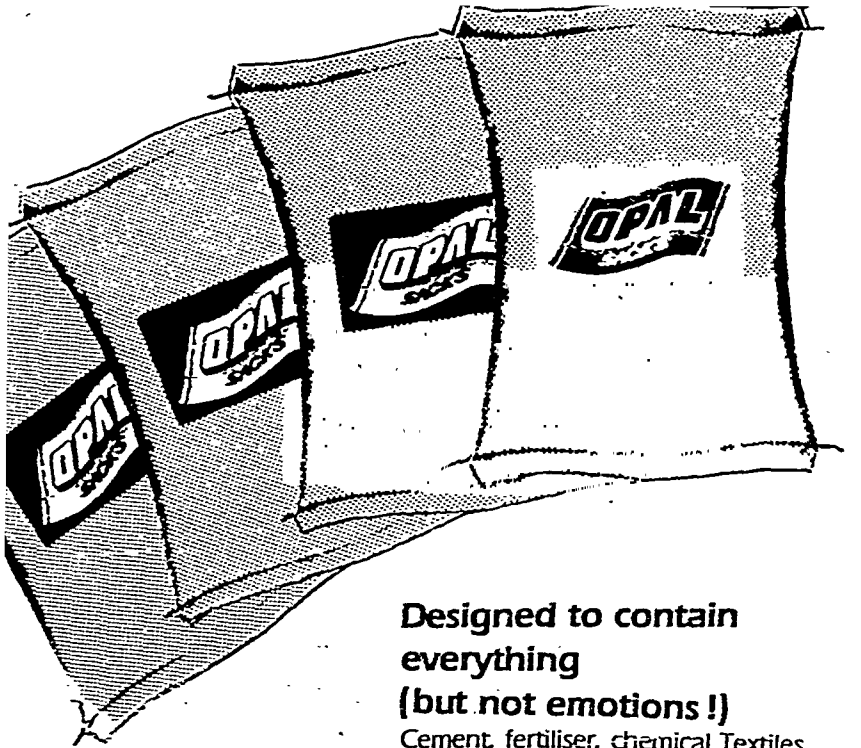

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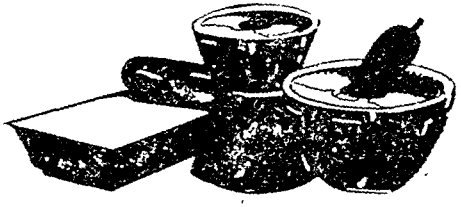

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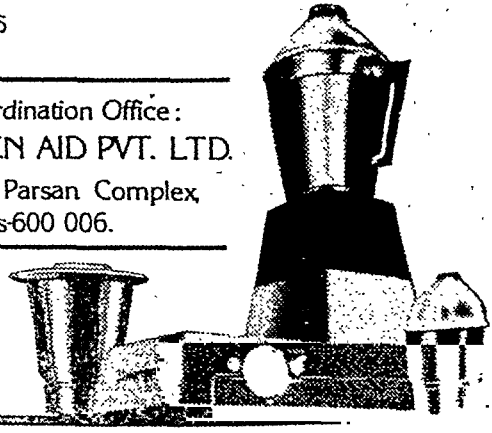

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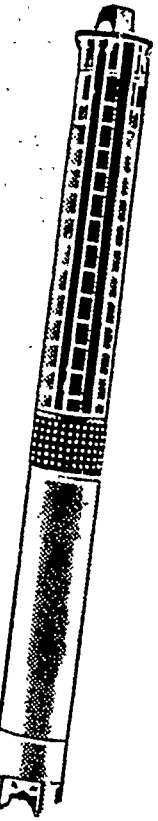

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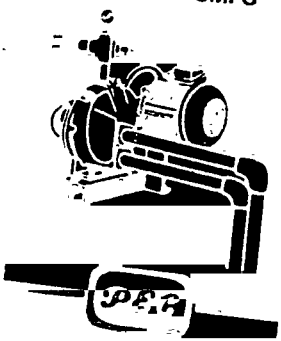

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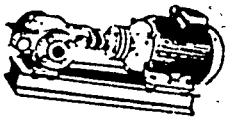

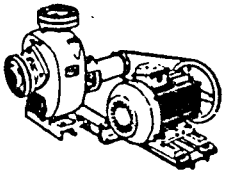

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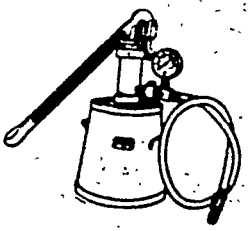

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